
CZECH SPACE CATALOGUE

CZECH SPACE OFFICE

CZECH SPACE CATALOGUE

INTRODUCTION

You have in your hands the second edition of the catalogue presenting basic overview of the Czech space research and technology capabilities. The previous edition published two years ago has been received with great interest by the international space community and it has helped to create new partnerships with Czech companies and universities. Keeping this source available for future, the Czech Space Office offers you the updated version from the year 2013.

The Czech Republic has been a member of the European Space Agency for five years. During that time, the Czech participation in European space programmes has been continuously growing. By providing this background information about space related capabilities and expertise of almost 80 Czech companies, universities and other research institutions, the Czech Space Office is contributing to integration of the Czech space industry into international cooperation in space.

When looking through the catalogue you find that ongoing developments by Czech space industry encompass a range of technology areas including electronics, advanced manufacturing, optics, data analysis and processing, avionics, structures, modelling and telecommunications developments. In addition to developing space flight hardware and software, there are companies and institutions focusing on services and applications that utilize satellite based systems including navigation, telecommunications and Earth observation satellites. Important group of research institutes and universities is presented as well, covering fields of space science, nuclear physics, life sciences and Earth sciences together with robotics, telematics, material research and laser optics. Existing space projects confirm necessity to foster collaboration between Czech scientists and industry, especially those companies with experience in development of technology and products for space.

While searching for new business and cooperation partners, let me invite you to use this brochure for exploring the related opportunities in the Czech Republic. If you need more information, contact directly the Czech Space Office.

I believe that you find this catalogue helpful.

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GENERAL DESCRIPTION

The 5M s.r.o. company operates in the area of the development and manufacture of composite and sandwich materials. We specialise in demanding applications and special products. Our customers are companies from ground vehicle transportation and aircraft industry but also electronic parts or certificated equipment producers. We have our own R&D, into which we invest about 8 % of the annual turnover. We have been awarded as the Company of the Year of 2010 in the Czech Republic.

FIELDS OF EXPERTISE

Production and development of structural composite parts, pultruded profiles, structural epoxy adhesives, sandwiches, epoxy resins, aluminium honeycombs, foil adhesives, pre-impregnated fibers, precise sandwich surfaces for optics.

SPACE PROJECTS, PRODUCTS, SERVICES

Composite materials with low volatile content and radiation resistance for astrophysics and space applications.

Large-sized composite structures for active and adaptive optics.

High precision sandwich panels for optics.

Materials for structures of small satellites.

Composite materials with enhanced fire resistance.

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GENERAL DESCRIPTION

Acision's proven products and services, experienced people and service innovation allows organisations to meet the challenges in today's converging telecommunications market. Acision is at the heart of its customers' strategic business services, working together to achieve profitable and sustainable growth. Acision's recognised expertise extends across a portfolio of propositions, products and services and is based upon a global track record, business insight and leading edge technology platforms.

FIELDS OF EXPERTISE

Mobile data services, mobile data control and mobile data charging solutions.

SPACE PROJECTS, PRODUCTS, SERVICES

Feasibility study of providing traffic emergency data services by means of e-call mobile messaging using more channels and standardized protocols of satellite position information.

The role of satellite in converged mobile/fixed/broadcasting environments.

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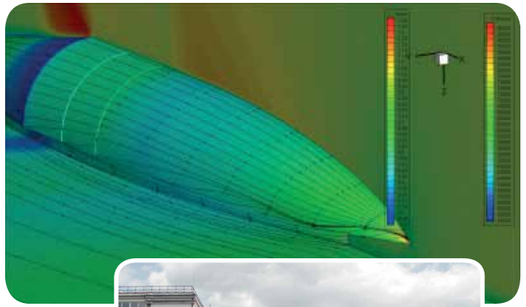

GENERAL DESCRIPTION

Aeronautical Research and Test Establishment (VZLU) is a national centre for research, development and testing in aerospace and space. The main mission of VZLU is to generate new knowledge, transfer it into industrial practice and to provide its partners with the maximum support in the development of new products.

Aeronautical Research and Test Establishment

FIELDS OF EXPERTISE

The major fields of expertise include aerodynamics, strength of structure, aircraft propellers and industrial fans, aircraft engines, composite materials and technologies and accredited testing. In the field of space activities VZLU focuses on sensors and scientific equipments, space engineering and testing.

SPACE PROJECTS, PRODUCTS, SERVICES

SWARM – delivery of three flight models of microaccelerometer including EGSE for SWARM mission.

TEASER – flight verification of microaccelerometer during orbit operation on Russian satellite TATIANA 2.

MIMOSA – vibration qualification testing of the Czech microsatellite.

CUSA – The first phase of development of the satellite type 1U CubeSat.

PROBA – Contribution to ASPIICS Coronograph on Board Proba 3 Mission of ESA.

Products – Design, development and production of sensors and scientific equipments.

Engineering – strength, thermal and reliability analysis, electronics development.

Testing – vibrations, thermo-vacuum testing, centrifuge, clean room.

PM/PA – Project management and product assurance compliant with the ESA rules, ECSS standards and customer requirements.

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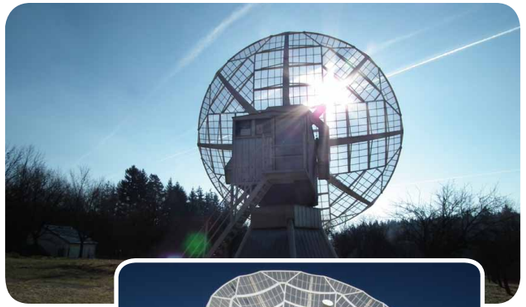

GENERAL DESCRIPTION

The scientific research conducted at the Astronomical institute covers a wide range of astronomical and astrophysical topics. The research activities are carried out in four scientific departments: Solar physics; Stellar physics; Interplanetary matters; Galaxies and planetary systems.

Astronomical Institute
Academy of Sciences of the Czech Republic

FIELDS OF EXPERTISE

Solar physics, meteor physics, stellar astronomy, galactic astronomy and dynamics of bodies of the solar system including the artificial satellites.

SPACE PROJECTS, PRODUCTS, SERVICES

SOHO – scientific interpretation and analysis of SOHO satellite´s data.

INTEGRAL – data analysis with emphasis on cataclysmic variables and blazars.

XMM – analysis and interpretation of X-ray spectra from the XMM-Newton satellite.

Gaia – software and ground-based support for extremely precise astrometry and photometry project.

GOCE – software and operational support for the gravity field GOCE mission.

Bepi Colombo-2 – modelling kinetic processes in the Mercury's magnetosheath and magnetosphere.

STIX – development and delivery of low and high voltage power supplies and flight software for the Solar Orbiter's instrument STIX.

METIS – development and delivery of optical components for the coronagraph onboard Solar Orbiter probe.

RPW – development and delivery of main power supply for the RPW instrument onboard the Solar Orbiter probe.

ASPIICS – development and manufacture of optical components and closing door for coronagraph onboard the Proba-3 satellite.

JUICE – design, development and delivery of the Low Voltage Power Supply as a mandatory power conversion subsystem of the RPWI package.

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GENERAL DESCRIPTION

AVX Czech Republic s.r.o. is subsidiary of AVX Corporation with headquarter in Myrtle Beach, SC, USA a group of Kyocera. AVX Czech Republic is a part of tantalum division producing tantalum capacitors with worldwide market share exceeding 26%. The product portfolio is wide range of tantalum and niobium oxide capacitors from consumer, cellular phones, telecommunications to automotive, high reliability, medical and special aerospace applications.

FIELDS OF EXPERTISE

Development of tantalum capacitors. Technical expertise including R&D capability, technical and application support in the field of capacitors, especially tantalum capacitors.

SPACE PROJECTS, PRODUCTS & SERVICES

Component supplier of all aerospace suppliers: primes, 2nd tier, SME through distribution.

ESCC 3012 SMD tantalum capacitors.

COTS+ MIL PRF 55365 manufacturing base with final screening in USA.

EPPL low ESR tantalum capacitors (under approval).

Hermetically sealed low ESR tantalum capacitor development for space applications.

Low ESR tantalum capacitors qualification.

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GENERAL DESCRIPTION

BBT-Materials Processing, which was founded in 1991, is a R&D and production company in the field of material sciences, crystal growth & manufacturing, crystal optics & acoustooptics for applications from visible to infrared spectrum.

FIELDS OF EXPERTISE

Crystal growth and non-equilibrium solidification processes in microgravity, crystal optics and acousto-optics, laser applications, development and manufacturing of apparatuses, devices and software according to customer's requirements for space and on-ground applications, incl. mechanics and electronics.

SPACE PROJECTS, PRODUCTS, SERVICES

CSK-1A, B,-C , TITUS, Advanced TITUS, TITUS.

MPP – space crystallizers for MIR, FOTON, ISS.

Fast optical processors.

Non-equilibrium solidification of multi-component alloys.

DTA probe – Differential thermal analysis

Passive damping platform.

Thermographic probe.

Morava I on Salyut 6.

Morava II+III on Mir.

RIM – experiments of a recalescence of Ag-Ge alloys carried out on board the space station MIR by means of the CSK-1 furnace.

TES and TEST-TES – recalescence of alloys on board MIR using CSK-1furnace.

Non-equilibrium solidification experiments during short-term free fall.

MIRSA – Innovative acousto-optic systems in the Mid infrared.

NAOMI – New Acousto-Optic device based on Calomel for hyperspectral imaging in space applications.

NAOMI-PHASE 2 – application study.

DEMON – Development of Quality Evaluation Methods for Calomel Optical Elements.

MINERVA – MId- to NEaR infrared spectroscopy for improVed medical diAgnostics.

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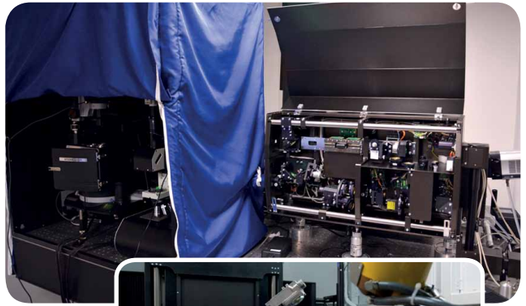

GENERAL DESCRIPTION

CEITEC is a scientific centre in the fields of life sciences, advanced materials and technologies whose aim is to establish itself as a recognized centre for basic as well as applied research. CEITEC offers a state of the art infrastructure and great conditions to employ excellent researchers. It is a consortium whose partners include the most prominent universities and research institutes in Brno.

Central European Institute of Technology
Brno University of Technology

FIELDS OF EXPERTISE

Evaluation of quality and reliability of electronic components, sensors and solar cells by using an analysis of electronic noise and transport characteristics, modeling of time and voltage characteristics and temperature dependencies, research of structure-property-function relationships in bottom-up assembled hierarchical responsive structural composites and functional nanocomposite coatings.

Development of laser-ablation based analytical techniques such as Laser-Induced Breakdown Spectroscopy (LIBS) for elemental analysis and elemental mapping in different application fields, utilization and development of X-ray micro computed tomography (µCT). Combination of LIBS and µCT, Design of automatic control and sensing systems, including special HW and SW for signal processing, data communication and computer vision. Development and construction of mobile robots for military and civil reconnaissance missions as well as HMI and telepresence systems.

Research and development of advanced metallic materials, intermetallic materials and coatings for engineering applications. Coatings are produced by several thermal spray and electro-chemical technologies. Development and providing of specific material or coatings testing methods considering, isothermal and cyclic testing in ambient or specific atmospheres, cavitation resistance of materials and coatings in linear hydro-cavitation stands, etc. Providing structural and phase analysis of materials and coatings using light, scanning electron or high resolution transmission microcopy and X-ray diffraction techniques.

SPACE PROJECTS, PRODUCTS, SERVICES

Evaluation of supercapacitors and impact at system level – model of the supercapacitor.

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GENERAL DESCRIPTION

For more than 12 years, CertiCon has been improving the competitiveness of our clients around the world. CertiCon's solutions comprise the full spectrum of services and solutions in SW development, SW quality-assurance verification and testing. Our experience in the fields of mission-critical applications and high-tech industrial applications enables us to harness the best practices and solutions for the clients. CertiCon designs, develops, rapid-prototypes and deploys sophisticated software solutions. Our projects and solutions cross many industrial domains by leveraging state of the art methodologies and technologies.

FIELDS OF EXPERTISE

Sophisticated, tailor-made expert and prediction systems, production planning and scheduling solutions. Software solutions designed and built specifically for the high-tech devices, diagnostics solutions, defense, telco and space industry. Data mining, data processing and multi-agent systems.

SPACE PROJECTS, PRODUCTS & SERVICES

Project proposal for Flight control team multi-agent system.

CGI IT Czech Republic

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GENERAL DESCRIPTION

CGI is a global IT and business process services provider delivering high-quality business consulting, systems integration and outsourcing services. In the field of services or industry.

FIELDS OF EXPERTISE

Galileo Public Regulated Service.

SPACE PROJECTS, PRODUCTS & SERVICES

Gallileo PRS pilot project in Czech Republic.

Gallileo PRS CPA feasibility analysis for Slovakian Ministry of Transport.

Improving safety at rail level crossings by using GNSS technologies – LeCross together with CGI UK, CGI Finland and Finnish research institute VTT.

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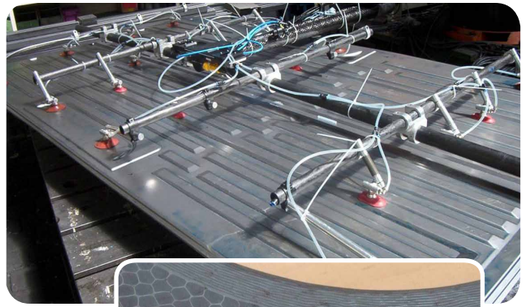

GENERAL DESCRIPTION

CompoTech Plus offers expertise, design consultancy, R&D, and manufacturing in structural composite tubes. We help our customers to develop market opportunities and work with them to enhance their products and maximise their cost benefits. This is achieved by optimizing the composite structure, its production technology, and the use of high-tech materials.

FIELDS OF EXPERTISE

Hydraulic and pneumatic cylinders with unique joint system, insulation tubes, drive shafts & control rods for automobiles, trolley-buses and electric locomotives (series production) and for UL aircraft (series production), high-tech optics & laboratory equipment, beams and tubing for high temperature loading (using pitch fibers), robot frames and beams (series production), headfoils (single, double and roller), mast tubes, booms, rollers for flexo printing industry (series production) and other various automation, marine and aerospace applications.

SPACE PROJECTS, PRODUCTS, SERVICES

Development of unique microscope and interferometer stiff and thermostabile legs and supports.

Development of unique joint system of composite materials.

Development of radar and sensor masts.

Creative Connections

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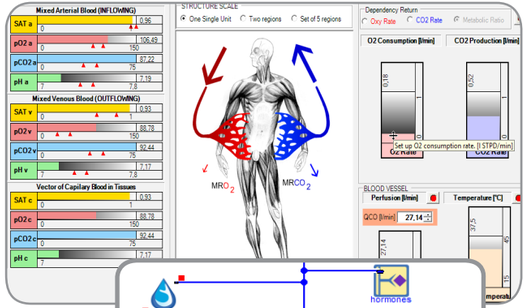

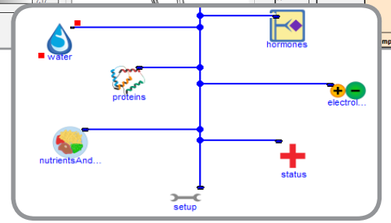

GENERAL DESCRIPTION

Creative connections s.r.o. is in close cooperation with the Laboratory of Biocybernetics and Computer Aided Learning from Charles University Prague and specializes in a transdisciplinary research in the field of physiology and pathophysiology, modeling, simulation, mathematical methods and programming. Hummod, (formerly Quantitative Human Physiology or QHP) is one of the largest mathematical models of integrated human physiology. Originally developed by T. Colleman et al. in USA, it has also been used by NASA. We reimplemented it in Modelica and enhanced especially in areas of blood gases and acidobasis. We also develop educational simulators, 3D virtual patient and model identification methods.

FIELDS OF EXPERTISE

Educational simulators and e-learning courses, 3D visualization, Virtual Patient, Large scale physiology models, Methods of model identification, development of Modelica. NET framework, member of the Open Source Modelica Consortium.

Creative Connections

SPACE PROJECTS, PRODUCTS, SERVICES

Improving Hummod – mathematical model of integrated human physiology.

Development of 3D Virtual Patient project.

Automatic model identification.

Teaching simulators and e-learning courses.

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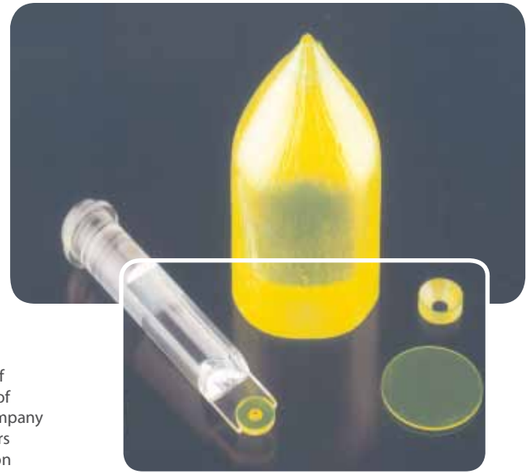

GD GENERAL DESCRIPTION

Crytur is a medium size enterprise focused on production of detectors of ionizing radiation based on single crystal scintillators. A parallel branch of activities is production of laser rods for high power applications. The company offers standard gamma ray, X-ray, beta and alpha particle or ion detectors as well as custom product development. Crytur has its own long-tradition research department in the field of crystal growth, machining of hard materials, dosimetry and special optics.

FE FIELDS OF EXPERTISE

Single crystal growth, scintillation crystals YAG:Ce, YAP:Ce, LuAG:Ce, NaITl, BGO, laser crystals Nd:YAG, Yb:YAG, Er:YAP, Tm:YAG, V:YAG, Nd:YAP, Er:YAP, Tm:YAP, laser rods, sapphire tubes and caps.

Hard material machining, scintillation detectors, scintillator imaging screens, gamma-ray detection, X-ray detection and imaging, X-ray CCD camera, electron, proton and ion detection and imaging, alpha particle detection and imaging, detectors for electron microscopy, X-ray tomography, high-resolution X-ray imaging, conductive coatings, high-reflectivity mirrors, anti-reflection layers, optical filters, laser optics, precision assembly and testing, custom-designed scintillation detectors.

SP SPACE PROJECTS, PRODUCTS, SERVICES

Crystal clear collaboration – development of growth of $PbWO_4$.

Compact eye-safe nanosecond laser.

Advanced techniques for detection of ionizing radiation.

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GENERAL DESCRIPTION

The CSRC main domain is a complex realization of space electronics systems representing the flight hardware & software design including the Hi-Rel PCB manufacturing in its own Clean Room. The company has delivered own flight hardware to the Integral, Smart-1, Demeter and Proba-2 satellites. The complex activities include also tests, simulations, analyses and mechanical designs. The CS RC significant scientific and research base is the Faculty of Electrical Engineering and Communication, Brno University of Technology.

FIELDS OF EXPERTISE

Hardware & software design, analyses and simulations, testing and integration, high precision mechanics design, prototyping, space electronics manufacturing, FM & EM PCB assembly, own class 100 000 clean room, ESA certificated operators, ESA qualified procedures.

SPACE PROJECTS, PRODUCTS, SERVICES

SATRAM – Space Application of Timepix based universal RAdiation Monitor.
ELT – European Laser Timing instrument for ACES experiment on ISS.
SMT – assembly verification programme according to ECSS-Q-ST-70-38.
BOSC – evaluation Bank Of SuperCapacitors and impacts at system level.
SABIP – Space-based ADS-B IOD Payload for air traffic surveillance.
MTG – Support for on-board electronics for Meteosat Third Generation.
SWARM & Teaser – development of precise micro-accelerometer.
Proba-2 – Langmuir Probe, DSLP & TPMU.
Demeter – I-V Converter.
Smart-1 – EPDP
Integral – PSAC
MetOp, Taranis, GOME-2, Cluster II, NODE-3, SATELCOM, PCDF-CCD head

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GENERAL DESCRIPTION

The department brings up new aerospace engineers for the aerospace industry or for research and development of air traffic. The Department provides lectures in the aeronautics and astronautics master program at the Faculty of Civil Engineering and a number of specialized aerospace subjects in the aerospace fields at other faculties of the CTU in Prague. The Institute also provides further post gradual study for graduates and aerospace specialists in a doctoral study program titled Traffic machinery and appliances. The department carries out extended scientific, research and development activities in many areas depending on concrete needs of the aerospace industry. The department cooperates with a number of industrial and production companies and operators of aviation technology and it is involved in the solution making of many national and international projects.

Department of Aerospace Engineering
Faculty of Mechanical Engineering
Czech Technical University in Prague

FIELDS OF EXPERTISE

Design of aircrafts and engines, Aerodynamics and Mechanics of Flight, Safety and Reliability of construction, Composite Materials and Technologies, Aeroelasticity and modal analysis, Numerical modeling – FEM, CFD, Strength analysis and testing of structures, Non-destructive testing methods (NDT), Tensile testing machines, materials testing, Tensometric measurement - Metals and Composites.

Department of Applied Geoinformatics and Cartography
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www.natur.cuni.cz/geografie/geoinformatika-kartografie

GENERAL DESCRIPTION

The Department's activities are closely linked with other Natural Science departments and it cooperates with external research institutions through a variety of joint projects. Interdisciplinary research and cooperation represent source of competitive advantage of this institution. Department members are active in research projects at the national and international levels and participate in scientific symposia and conferences.

Department of Applied Geoinformatics and Cartography
Faculty of Science
Charles University in Prague

FIELDS OF EXPERTISE

Remote sensing and its applications, Geographic Information Systems (GIS), concepts and applications, digital photogrammetry, principles and practice, spatial database concepts & establishment and management, web applications of geoinformatic, visual representation of spatial data, interactive mapping, GPS theory and use, computational geometry and mathematical cartography, thematic and historical cartography, operational applications of geoinformatics in natural sciences.

SPACE PROJECTS, PRODUCTS, SERVICES

FLOREO – demonstration of ESA environments in support to FLOod Risk Earth Observation monitoring.

TANGO – Telecommunications Advanced Networks for GMES Operations.

GeoNetCab – GeoNetwork for Capacity Building.

Department of Biomedical Engineering
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GENERAL DESCRIPTION

Transdisciplinary research in the field of biomedical engineering, medical instrumentation, bioinformatics and bioimaging.

Department of Biomedical Engineering
Faculty of Electrical Engineering and Communication
Brno University of Technology

FIELDS OF EXPERTISE

In-vivo imaging, optical coherent tomography, optical microscopy, fluorescent microscopy, ultrasound tomography, biomedical image analysis, cell engineering including ion channel measurements and cell culturing, measurement and analysis of electrical activity of living organs, phylogenetic analysis, numerical representation of genomic and proteomic data.

SPACE PROJECTS, PRODUCTS, SERVICES

Registration of 3D and 4D medical image data.

Reconstruction of images from ultrasound transmission tomography.

Optical recording of electrical potentials from the heart with laser stabilization.

Tools for biochemical and molecularly-biological studies of eukaryotic cells.

Technology for transplantology.

Development and Innovation of new nanomaterials for modification of vascular transplants.

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GENERAL DESCRIPTION

Department of Control Engineering is leading research and educational unit in control engineering in the Czech Republic and one of the most advanced control engineering centers in Europe. The expertise of its faculty members ranges over control theory (optimal, robust, adaptive and predictive control, numerical algorithms for control), control computers (real time operating systems, industrial networking and industrial computers) and instrumentation (electronics, electric drives, sensors).

Department of Control Engineering
Faculty of Electrical Engineering
Czech Technical University in Prague

FIELDS OF EXPERTISE

Control systems for spacecraft and aircraft, modelling and identification, embedded systems, industrial electronics, algorithms and software for signal processing applications.

SPACE PROJECTS, PRODUCTS, SERVICES

SpaceMaster – European joint master in space science and technology. Erasmus-Mundus programme. DCE is responsible for the track on systems and controls for space applications.

ACFA 2020 – Active Control for Flexible Aircraft.

Robust hinfinity controller for VLT telescope in Atacama, Chile – design and assessment of robustness and performance.

FRESCOR – Framework for Real-time Embedded Systems based on COntRacts.

GOLEM – bio-inspired self-assembly process for mesoscale products and systems.

ARTIST 2 – embedded systems design.

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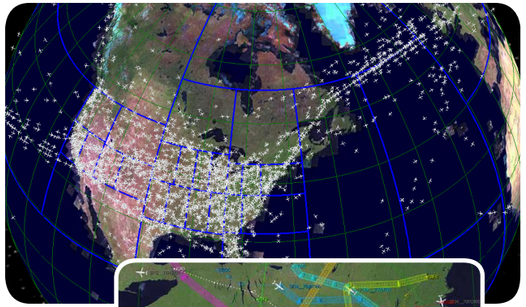

GENERAL DESCRIPTION

The department is recognized as an outstanding research center in the CTU in Prague in the area of artificial intelligence, computer vision, robotics, biomedical engineering and their applications. The department received the prestigious European IST Prize in 2006.

FIELDS OF EXPERTISE

Agent technology: multi-agent systems, decentralized planning and coordination, simulation, network security, (UAV) air traffic control.

Computer vision: 3D reconstruction, visual recognition and detection, omnidirectional vision, non-classical cameras, medical imaging, visual inspection.

Mobile robotics: control of mobile robots, team cooperation of human-robot entities, sensor data fusion, robot navigation. Data mining, pattern recognition: knowledge discovery from databases, decision support systems.

Biomedical engineering: smart assistive tools and user interfaces for on-line monitoring and tele-care applications in homecare, biological data and signal processing and visualization.

SPACE PROJECTS, PRODUCTS & SERVICES

ProVisG – Planetary Robotics Vision Ground Processing.

ProViScout – Planetary Robotics Vision Scout.

AgentFly – a software prototype enabling large-scale simulation of civilian and unmanned air traffic.

Department of Electromagnetic Field
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GENERAL DESCRIPTION

Research in the field of radiowave propagation, antennas and microwave technology has a long tradition at the department. Shielded anechoic antenna chamber and microwave laboratories support the activities by large variety of implemented measurements methods in frequency bands from 500 MHz up to 110 GHz. The department disposes of several professional software tools for antenna and microwave circuits design as well as of in-house developed software for advanced propagation predictions.

Department of Electromagnetic Field
Faculty of Electrical Engineering
Czech Technical University in Prague

FIELDS OF EXPERTISE

Electromagnetic fields, antennas, radio wave propagation, microwave and millimetre wave technique, optical communications, and electromagnetic compatibility.

SPACE PROJECTS, PRODUCTS, SERVICES

Building Penetration Measurement and Modelling for Satellite Communications at L, S and C-Band.

Propagation Modelling of Shadowing by Vegetation for Mobile Satcom & Satnav Systems.

The Influence of the Atmosphere on Electromagnetic Wave Propagation for Broadband Stratospheric Links.

Antenna Systems and Sensors with Special Properties.

Advanced Communication Systems and Radiowave Propagation Modelling for High Altitude Platforms.

Centre for quasi-optical systems and terahertz spectroscopy.

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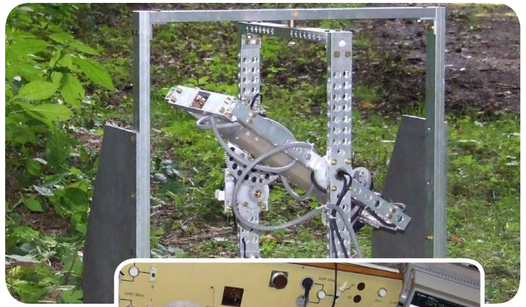
E-mail: 13138@fel.cvut

measure.feld.cvut.cz



GENERAL DESCRIPTION

We perform research in sensors, instrumentation and measurement, and NDT. We are one of the most research intensive departments at the Czech Technical University, the best technical university in the country.

Department of Measurement
Faculty of Electrical Engineering
Czech Technical University in Prague

FIELDS OF EXPERTISE

Magnetic sensors and magnetometers, test and measurement systems, vision sensors and videometry, embedded systems, NDT, signal analysis and processing, airborne instrumentation, speach quality testing.

SPACE PROJECTS, PRODUCTS, SERVICES

Development of magnetometer for the Danish Oersted satellite.

Fluxgate magnetometer for Czech satellite MIMOSA.

Tester for space micro-accelerometer for SWARM mission.

In Space Propulsion -1 – development of a complete data acquisition chain for electric propellant pump testing & diagnostics.

Fluxgate gradiometer for space applications.

Non-magnetic calibration platform for calibration and testing of magnetometers.

Participation in attitude interface module for ESMO project.

Department of Microelectronics
Faculty of Electrical Engineering
Czech Technical University in Prague

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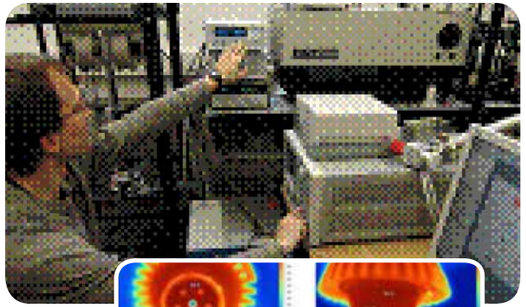

GD GENERAL DESCRIPTION

Design of integrated circuits (analog, digital), design of microsensors and microactuators (MEMS, Si, GaAs, AlGaN, etc), Smart integrated sensor systems, security electronic systems. Wireless systems for sensor data transfer. Design, simulation and characterization of semiconductor structures and nanostructures, PCB design and EMC.

Department of Microelectronics
Faculty of Electrical Engineering
Czech Technical University in Prague

FE FIELDS OF EXPERTISE

Design, simulation of integrated circuits, simulation of thermo-mechanical behaviour of electronic elements, electronic circuits design and simulation, microsystem and microsensor testing.

Radiation defects in semiconductors, radiation hardness, optical and structural analysis of semiconductor devices and structures, PCB design and EMC, current injection capability testing of integrated circuits.

SP SPACE PROJECTS, PRODUCTS, SERVICES

Preparation, modification and characterization of materials by energetic radiation design, modelling, simulation of the new generation LED Lights – consumerizing solid state lighting, Leader Philips Lighting, Netherlands.

Design of the new structures AlGaN – materials for robust Gallium Nitride, leader Thales laboratory, France.

Intelligent micro and nano structures for microsensors realized with support of nanotechnology.

Department of Nonlinear Modelling
Institute of Computer Science
Academy of Sciences of the Czech Republic

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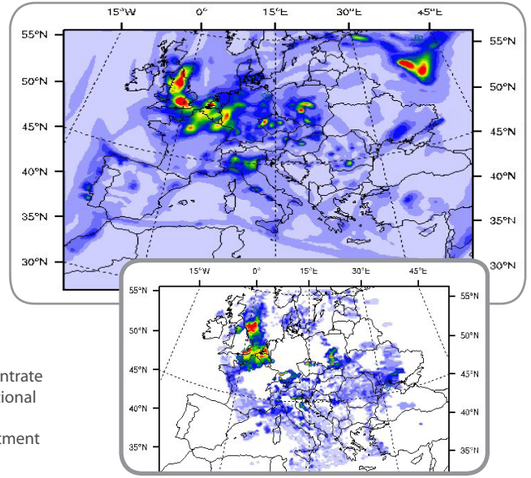

GENERAL DESCRIPTION

The Institute performs research in Computer Science. Its activities concentrate in particular on basic research in computational mathematics, computational complexity theory, computational intelligence and applied research in nonlinear modelling and medical informatics. The research in the department of nonlinear modelling aims at non-linear modelling and prediction, environmental informatics and applications in the energy sector.

Department of Nonlinear Modelling
Institute of Computer Science
Academy of Sciences of the Czech Republic

FIELDS OF EXPERTISE

Running numeric weather prediction models and chemistry transport models, in-situ and satellite data assimilation, methods of inverse modelling, statistical postprocessing of model outputs.

SPACE PROJECTS, PRODUCTS, SERVICES

ACCENT – participation in the working group ACCENT-TROPOSAT-2.

Improvement of air quality modelling and prediction of the health hazards.

GNSS4SWEC – advanced Global Navigation Satellite Systems tropospheric products for monitoring Severe Weather Events and Climate.

Advanced random field methods in data assimilation for short-term weather prediction.

Department of Physical Electronics
Faculty of Nuclear Sciences and Physical Engineering
Czech Technical University in Prague

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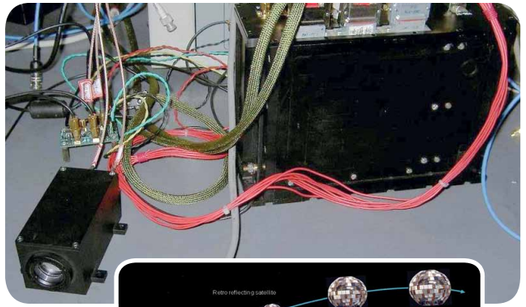

GD GENERAL DESCRIPTION

Technical university department with a long heritage in space related projects under various roofs of Interkosmos, NASA and other space agencies. The group was coordinating the world satellite laser ranging network for 20 years, it contributed to deep space missions to Mars and to laser time transfer missions by CNES, NASA, China, and ESA mostly with detectors based on Single Photon Avalanche Diode (SPAD).

Department of Physical Electronics
Faculty of Nuclear Sciences and Physical Engineering
Czech Technical University in Prague

FE FIELDS OF EXPERTISE

Satellite laser ranging, laser altimetry in space, LIDAR, ps timing and photon counting detector technology, solid state lasers and their applications in space, X-ray optics and diagnostics.

SP SPACE PROJECTS, PRODUCTS, SERVICES

Satellite Laser Ranging – ground segment network.

Portable calibration standard for SLR network.

Mars 92, Mars Polar Lander 98 – altimeter & LIDAR.

T2L2 at Jason-2 – detector for laser time transfer.

LTT at BeiDou-2 / Compass – detectors for laser time transfer.

X-ray optics and diagnostics – research activity.

European Laser Timing – SPAD based detector.

Department of Physical Electronics
Faculty of Science
Masaryk University in Brno

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www.physics.muni.cz/kfe

GENERAL DESCRIPTION

The principal activity of the Department of Physical Electronics is the research and development of low-temperature plasmas. More than 50 years of applied plasma research at the department resulted in several innovations successfully transferred into the industry. The researchers provide professional services in the field of plasma physics, material analysis and plasma-surface interactions for industrial and academic partners in Europe.

Department of Physical Electronics
Faculty of Science
Masaryk University in Brno

FIELDS OF EXPERTISE

Research and development of non-isothermal low temperature plasma sources, plasma chemistry, interactions of plasma with solid and liquid surfaces, plasma processing of materials, plasma surface modifications, plasma medicine, deposition of hard and protective thin films, plasma diagnostics and plasma modelling.

SPACE PROJECTS, PRODUCTS, SERVICES

Advanced materials for aerospace.

Surface modification of materials.

Nanomaterials and smart materials.

Structural, mechanical and other material properties.

Department of Surface and Plasma Science
Faculty of Mathematics and Physics
Charles University in Prague

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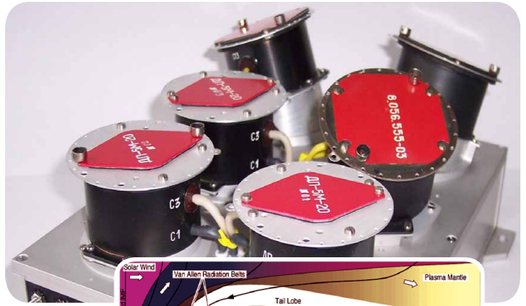

GENERAL DESCRIPTION

The scientific research of our group is oriented to experimental investigations of the space environment. Members of the group participate in a development of space plasma instruments, processing and interpretation of data collected during many international projects and they are involved in a laboratory research as well. The scientific research is devoted to Sun-Earth's relationships and predictions of Space Weather conditions.

Department of Surface and Plasma Science
Faculty of Mathematics and Physics
Charles University in Prague

FIELDS OF EXPERTISE

Design and development of scientific instruments for international projects predominantly to study of plasma parameters, charged particles, and wave processes; development of diagnostic methods and sensors for these studies; laboratory simulations of charging of small dust grain related to space environment.

Investigations of temporal and spatial variations of the plasma parameters like the solar wind and magnetosphere and its boundaries near Earth, Moon and Mercury.

SPACE PROJECTS, PRODUCTS, SERVICES

Plasma environment monitoring instruments flown on spacecrafts: PLAZMAG, MONITOR, AKME, BIFRAM, DOR, BD-3, SP-C, PEAS, MPS, MONITOR-3, VDP, SPS, VDP-S, EPS, FONEMA, BMSW for the SPECTR-R mission measuring solar wind; MPPE for the MMO Bepi Colombo mission to Mercury, BMSW-2 for the Luna Glob and IDEE for the Taranis project at near Earth's orbit.

PRASSADCO – PRopagation Analysis of STAFF-SA Data with COherency tests computer program designed to analyze multicomponent measurements of electromagnetic waves.

JOB computer program to processing of data from scientific instruments.

Laboratory set-up for investigations of elementary processes in dusty plasmas.

Department of Telecommunication Engineering
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Czech Technical University in Prague

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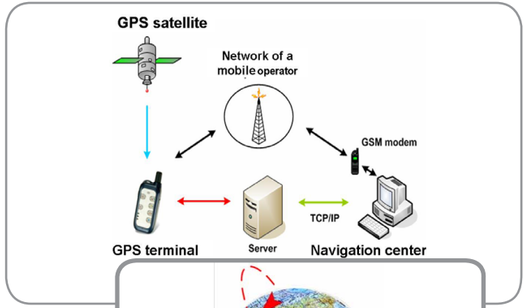

GD GENERAL DESCRIPTION

The Department of Telecommunication Engineering provides education in the bachelor and Master stage of study as well as in the doctoral program at the Czech Technical University in Prague, Faculty of Electrical Engineering.
The research and grant-supported activities of the Department are focusing on cable and wireless communication technologies, including the development of networks and satellite links. The Department deals also with combined applications, such as GNSS and electronic communications in general.

Department of Telecommunication Engineering
Faculty of Electrical Engineering
Czech Technical University in Prague

FE FIELDS OF EXPERTISE

Navigation of blind persons, convergence of telecommunication and data networks.

SP SPACE PROJECTS, PRODUCTS & SERVICES

Navigation of blind persons – in cooperation with Czech Blind United (SONS). Navigation center provides navigation for blind persons using the combination of GPS and GSM technologies.

Health Robot program – development and implementation of a mobile robotic terminal supervising humans, independently checking their vital functions and communicating with a control centre, medical centre and emergency centre.

FREEDOM – femtocell-based network enhancement by Interference management and coordination of Information for seamless connectivity.

GUARDSENSE – modern structure of photonic sensors and new Innovative principles for intrusion detection systems, integrity and protection of critical infrastructure.

BE-TEX – Research and development of new textiles protecting humans against high-frequency electromagnetic radiation.

Antarctica – communication with the Czech Antarctic station Johann Gregor Mendel.

Communication infrastructure for smart grid networks – application of new principles for power distribution network management and real-time energy consumption measurement.

SPEROS – SPace European Research Orbit Station, proposal for a satellite bearing a SW radio module, fully programmable from the Earth, allowing research, testing and development of applications in the area of satellite technologies.

Development and Implementation Laboratories
Faculty of Electrical Engineering
Czech Technical University in Prague

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Czech Republic

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lvr.fel.cvut.cz

GENERAL DESCRIPTION

The Laboratories deal with development, production and diagnostics of samples and small series of electronic devices. They are equipped with the most modern technologies for designing of printed circuit boards, development of firmware and programming of circuits, as well as technical background for automatic placement and subsequent operations using surface mounting of devices (SMD). The inter-operation and final inspection employs the equipment for optical, X-ray and electronic diagnostics.

Development and Implementation Laboratories
Faculty of Electrical Engineering
Czech Technical University in Prague

The basic technological equipment includes automatic placement machine (Essemtech), vapor phase soldering machine (IBL), 3D CT X-ray inspection system (GE – phoenix nanomex), and automatic optical inspection (Marantz).

FIELDS OF EXPERTISE

Development of circuitry, designing of layout for PCB's, development of firmware for programmable circuits, production using SMD elements. Subsequent testing using various methods (optical, X-ray, traditional electrical workplaces).

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GENERAL DESCRIPTION

EGGO Space offers a wide range of services and expertise including testing of EEE components, Industrial Screen-printing & Recycling of contaminated substances.

EGGO Test House benefits from vast experience in testing electrical, mechanical and life properties of electronic components as well as hybrid integrated circuits and their applications. The main range of Test Laboratory's activities consists of climatic, mechanical and life-time testing of components, parts and materials as well as interpretation and processing of results and defect analyses for electrical engineering and related industries. These tests serve customers from various industries including electrical, automotive and aerospace.

The organization and Test Laboratory procedures comply with the provisions of the European Standard ČSN EN ISO/IEC 17 025. The Test Laboratory was awarded the statute of a certified subcontractor for Electrotechnical Testing Institute, Prague.

FIELDS OF EXPERTISE

Reliability testing, Failure analysis, Temperature/humidity stress, Mechanical stress, Solderability, Non-linearity measurements, Corrosion test, Supercapacitors, Tantalum capacitors, Passive and Active components.

SPACE PROJECTS, PRODUCTS & SERVICES

Reliability Testing of AVX low ESR Tantalum capacitors types TPS and TPM, CNES project.

Evaluation of low ESR Tantalum Capacitor for AVX.

Development of Test Facility Dedicated to Passives Components.

Evaluation of Supercapacitors and Impacts at system level.

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GENERAL DESCRIPTION

Elmarco is the industry's first and leading supplier of industrial scale nanofiber production equipment. Partnerships with global industrial leaders and universities form the foundation for success of the company. Elmarco's unique NanospiderTM technology is designed for ease of use, scalability, modularity and flexibility in producing the highest quality nanofibers. In addition Elmarco uses its logistic and engineering knowledge, as well as the favorable location, to offer cost effective, high-end manufacturing outsourced services for equipment and subsystems, with a focus on the semiconductor industry. The global headquarters are in Liberec, Czech Republic, with two sales and services offices in Raleigh, NC, USA, and in Tokyo, Japan.

FIELDS OF EXPERTISE

Research in the field of biomedical engineering, mechanical, chemical engineering multi variable polymers and processes modelling using mathematical methods and fundamental experiments in physics of nanoworld, diagnostics of materials, product parameters and impact of nano fibrous layer to them.

SPACE PROJECTS, PRODUCTS & SERVICES

Customer specific development in the field of thermal insulation, while using nanofiber layers in order to improve performance while reducing weight.

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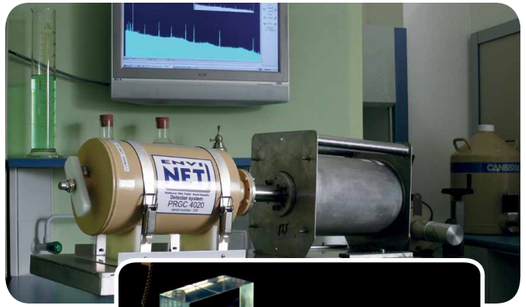

GENERAL DESCRIPTION

ENVINET is an engineering and supply company providing complex solutions and services for clients in the Czech Republic and abroad. It is a traditional supplier of devices and services in the field of nuclear power engineering, laboratory technology, software development, industrial automation and systems for ionizing radiation detection, certified in accordance with the international standards ISO 9001, ISO 14001, OHSAS 18001, ISO 20000 and ISO 27001.

FIELDS OF EXPERTISE

Development and production of scintillation materials such as NaI(Tl) crystals, ZnS(Ag) materials and plastic scintillators; specialized radiochemical and radiometric services; authorization to execute official ionizing radiation measurements; certificate for repairs and assembling of measurements instruments.

Complex supplies of laboratories and laboratory equipment; complex supplies of industrial automation systems (design, production, installation, service); information systems specialized for chemical, radiochemical, metrological and radiometric laboratories, measurements, records and technology management.

SPACE PROJECTS, PRODUCTS & SERVICES

RANUS-TD – Radiation and Nuclear Safety, Technology Development. Development of a detector of cosmic radiation, measurement of ionizing radiation, mechanical and electronic support, design and supply of laboratory and technological equipment.

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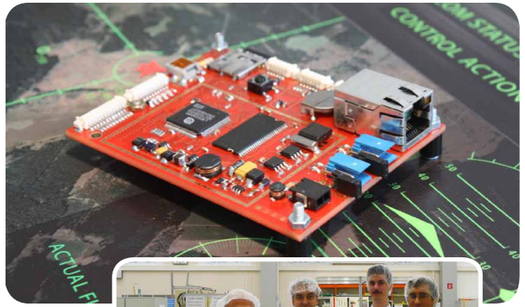

GD GENERAL DESCRIPTION

ESC is a leader in the field of on-board software in the Czech Republic and it is one of the leading Czech SMEs in the field of innovative R&D projects with a focus on aerospace projects. ESC is experienced in other areas like custom embedded systems for industrial automation, PLC technology, data transmission and microwave high frequency applications.

FE FIELDS OF EXPERTISE

Space qualified on-board software, software quality, embedded software, real-time software, control systems, navigation, RPAS/UAS, software architecture, hardware design, HW/SW development, EGSE/SCOE, embedded microcontrollers, data transmission, microwave high frequency applications.

SP SPACE PROJECTS, PRODUCTS, SERVICES

Sentinel-4 PAT – Performance Assessment Tool for the S4/UVN instrument. Ground segment data processing software.

DCS & GEOSAR – Data Collection System & GEO Search And Rescue payload.

ANTARES/IRIS – baseline satellite payload emulator.

SphinX – data processing SW for fast Soft X-ray Spectrophotometer.

OBCP-BB – requirements and I/F definition for future OBCP building block, space qualified flight software.

OBSW-RAC – on-board software reference architecture consolidation, space qualified flight software.

STIX – space qualified flight software for Solar Orbiter mission instrument.

SWARM mission microaccelerometer instrument – space qualified flight software.

UAS – autonomous aerial target system HAES 400.

Long range communication system based on WiMAX.

ARCA – S&A collision avoidance system for UAVs.

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www.explosia.cz

GENERAL DESCRIPTION

Explosia a.s. is production and trading company operating primarily in the field of production of explosives and services associated with application of energetic materials for commercial and military use. The company was established in 1920 and since then it has existed in a series of various forms and business groups. Explosia holds an important position in the field of explosives and propellants in the Czech Republic market, and it is also an important exporter, primarily to EC countries.

FIELDS OF EXPERTISE

Single base and double base powders, ball powders, rocket propellants, rocket motors and ammunition, combustible cartridges, modular combustible cartridge cases, military explosives and charges for ammunition, low vulnerability explosives and IM munitions, civil explosives for casting technologies, filing of explosives and assembly of explosive systems, safety engineering in explosives and chemical processes, explosive working of metals.

Fire-fighting and explosion suppression systems, detonation microcords, marking agents and detection of explosives, ecology in explosives and chemical production, demilitarisation of ammunition and explosives, special analytical methods, disposal of harmful substances, small scale production of new energetic materials.

SPACE PROJECTS, PRODUCTS, SERVICES

Pyro-neutralisation cutting charges for Ariane-5 launcher.

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GENERAL DESCRIPTION

EZconn Czech is a design, engineering and manufacturing provider for packaging and assembly in the optoelectronics industry as well as development and production manufacturer of various types of optical components made-to-measure customer's requirements as well as mass manufacture of standard products.

We specialize in process development, sample manufacturing, mass production and services (wafer level packaging, chip on carrier / MEMS, TO diode packaging, Bi-Directional optical sub-assembly, transceivers). Manufacturing processes to support these packages include chip on carrier, die bonding, wire bonding, burn in, test and visual inspection on wafer scale and die bonding, wire bonding, burn in, test, active alignment single mode products on discreet components.

FIELDS OF EXPERTISE

Development of TO-Bidi (Bi-directional optical component) designed for full duplex communication over a single (Single or Multi-mode) fiber. The emitter and the receiver are located on one single TO in hermetically sealed TO can with flange.

SPACE PROJECTS, PRODUCTS, SERVICES

Suplier of TO-Bidi for Tesat-Spacecom GmbH & Co. KG.

Faculty of Transportation Sciences
Czech Technical University in Prague

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GD GENERAL DESCRIPTION

A leading transport-oriented faculty in the Czech Republic with approximately 2000 students in several specialized bachelor's, master's and Ph.D. programs who benefit from project-oriented studies which, among others, enable team work on transport projects under the supervision of experienced specialists. The faculty is carrying out also many research activities with wide scientific and international cooperation, also in several EU framework projects.

Faculty of Transportation Sciences
Czech Technical University in Prague

FE FIELDS OF EXPERTISE

Intelligent transport systems (ITS), GNSS, ITS applications, intelligent transport system parameters, localization and navigation, telecommunications, performance parameters, identification systems, traffic control, human-machine interaction, vehicle simulators, intelligent vehicle, safety and reliability.

SP SPACE PROJECTS, PRODUCTS, SERVICES

Participation of the Czech Republic within the Galileo Project.

CASTLE – Clusters in Aerospace and Satellite navigation Technology applications Linked to Entrepreneurial innovation.

e-IDENT – Electronic IDENTification systems in the transport process.

DOTEK – transport-telematic communication module.

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GENERAL DESCRIPTION

Foton s.r.o. is a manufacturer of advanced scientific instrumentation in the field of high temperature plasma physics, laser diagnostics, particle accelerator diagnostics and nuclear fusion instrumentation. For more than 12 years the company offers its products and services for many prestigious projects, academic institutions, large-scale facilities, e.g. high-power lasers, tokamaks, stellarators and high-tech companies.

FIELDS OF EXPERTISE

High voltage power supplies and generators mainly for photo detection applications, testing purposes and ultra-high vacuum technology, signal conditioning, optoelectronics, precise positioning and vacuum and large experiment control technology, custom instrumental engineering.

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www.frentech.eu

GENERAL DESCRIPTION

Frentech Aerospace delivers its products mostly for aircraft and space industry. Within Czech Republic Frentech Aerospace is a propagator of understanding of space activities to be taken as an industrial activities. In this field the company has leading position in Czech Republic. The company produces and delivers also parts (including spare parts) and assemblies for all aircrafts of Airbus, parts for B787 and Embraer. In the frame of space activities the company cooperates

with TESAT SPACECOM, RUAG SPACE, EADS Astrium, ESA, ESO and other companies.

FIELDS OF EXPERTISE

Know-how and technical equipment for production and management of processes necessary for space activities. Production of parts made of aluminium, titanium, and stainless steel, assembly, design and technical consultancy. Development of milled titanium springs, metal coating of titanium including surfaces preparation (Ni, Au, Black Coating).

SPACE PROJECTS, PRODUCTS, SERVICES

Parts for telecommunication satellites.

Assembly of mirrors for ESO ALMA.

Pressure regulator for reactive propulsion subsystems for spacecrafts.

Design optimization of mechanical subsystems for spacecrafts.

Cryosat structure for MTG mission.

Solar array panel deployment mechanisms for Iridium NEXT satellites.

Passive damping system.

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GD GENERAL DESCRIPTION

GINA Software is a builder of solutions for mission control, terrain mapping and staff management, based on a unique GINA System platform designed for usage in the most challenging conditions in the world. In the field of situation mapping the company is in the top five most recognized European companies.

FE FIELDS OF EXPERTISE

Iridium Satellite Terminal – unique solution for intelligent tracking over satellite and mobile networks with Iridium, GSM and 3G networks connectivity.

SP SPACE PROJECTS, PRODUCTS, SERVICES

ACRIMA – ECML workshop on Mobile Interoperability for International Field Deployment 2012.

ESNC – regional winner of the European Satellite Navigation Competition 2012.

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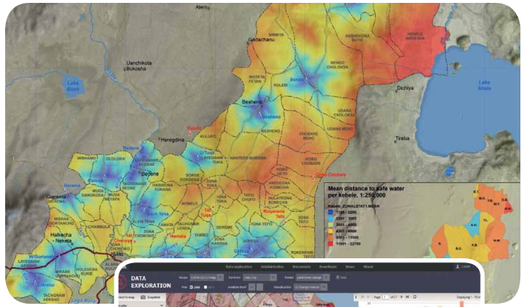

GD GENERAL DESCRIPTION

Gisat is a geoinformation service company providing value added services based on the Earth Observation technology. The service portfolio extends from satellite data and geomatics software distribution, through specialized image & GIS data processing and analysis, up to advanced geoinformation products and services. The company is ISO 9001 & ISO 14001 certified to guarantee the quality of provided services and to reflect the responsibility in environmental impacts of our activities.

FE FIELDS OF EXPERTISE

Aiborne and satellite data processing and analysis, GIS development and modeling, geo-information assessment, geo-portal development and applications, satellite data mapping and monitoring and design and development of web based analytical platforms for spatial data exploration, environmental, agricultural and urban monitoring and mapping support to emergency and development projects around the world belong to main application areas.

SP SPACE PROJECTS, PRODUCTS, SERVICES

Geoland2 & GSE Land – GMES services in the area of land monitoring.

SAFER & G-Mosaic & RESPOND – emergency and security GMES services.

FLOREO – operational snow & hydrological monitoring service.

Support to Topology – topological relationship-based applications.

CWRS – remote sensing control of agricultural subsidies in the Czech Republic.

SOSI – satellite imagery dissemination service.

DROMAS – agricultural DROught Monitoring and ASsessment.

ETMS – analytical platform for European Territorial Monitoring System.

PUMA – Platform for Urban Management and Analysis for World Bank.

DREAM – Decision Support and Real Time EO Data Management.

ETC/SIA – European Topic Centre for Spatial information and Analysis.

MARSOP-3 – operational activities for MARS Crop Yield Forecasting System.

HLANDAT – creation of value-added services based on LU/LC datasets.

EOEUROPA – Earth observation services for European Investment Bank.

EOWORLD – Earth observation services for WorldBank.

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GENERAL DESCRIPTION

G.L. Electronic s.r.o. draws on many years experience in production and application for space and military technologies, providing technical support especially in the production of HI-REL electronics for space projects - assembly, rework and modifications on the PCB according to ESA ECSS, internal cabling and external harness and quality control-visual inspection. Company participates on ESA - CNES projects, provides also technical support for the complete electrical installation and partial integration of Rack boxes.

FIELDS OF EXPERTISE

Design of analogue and digital systems, production of high-reliability of printed circuit boards, internal and external cabling, complete implementation of bonding and final integration and assembly. Testing of HW and SW of PCBs according to the customers requirements, including final unit tests, measurement rating of the boards & final units and reporting of test results. The company introduced the quality control system according ECSS to the process identification document (PID) & process verification plan (PVD).

SPACE PROJECTS, PRODUCTS, SERVICES

Hexapod, Sentinel-1, Galileo FOC, Globalstar 2, O3B, BepiColombo, Serena, Taranis, Solar Orbiter, Iridium-NEXT, Prisma, Galileo, ExoMars, EMAP – high reliability manufacturing, rework and modifications on PCB, bonding and quality inspections.

GlobalStar-2, EMAP, SGEO – measurement & testing of PCBs, thermal vacuum and vibrations tests.

AGILE – technical support of assembly and final integration of the completed FM of external harness and final integration of satellite.

Vessel SAT, LARES – technical support, and assembly, manufacturing and testing.

SSIS VERTA / VESPA, S-GEO – Manufacturing of cables and harness.

Mangousta – security camera system.

Vega & Soyuz – telematic solutions and technical support of launch facilities.

Global Change Research Centre
Academy of Sciences of the Czech Republic

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GENERAL DESCRIPTION

The principal activity of CzechGlobe is a comprehensive scientific research on issues of the changes of the global ecosystem and its impacts on the atmosphere, terrestrial biota and human society. The research activities are carried out in four scientific divisions: Climate Analysis and Modelling, Ecosystems Analysis, Impact Studies and Physiological Analysis, Innovation and Mitigation Techniques.

Global Change Research Centre
Academy of Sciences of the Czech Republic

FIELDS OF EXPERTISE

Remote sensing, satellite/airborne imaging spectroscopy, energy fluxes in ecosystems, climate modelling and scenarios development, landscape carbon deposition, biotechnology.

SPACE PROJECTS, PRODUCTS, SERVICES

Spectral-spatial scaling from leaf to canopy level using spectrodirectional approaches in support of the GMES Sentinel-2 superspectral mission.

Remote sensing of forest dieback and recovery assessment after bark beetle outbreaks.

Detection of water infiltration zones in agricultural fields using airborne hyperspectral and satellite multispectral data.

V Parku 2325/16
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Czech Republic

Phone: +420 724 488 072
E-mail: petr.novotny@honeywell.com

www.honeywell.com

GD GENERAL DESCRIPTION

Honeywell is a leading global provider of integrated avionics, engines, systems and service solutions for aircraft manufacturers, airlines, business and general aviation, military, space and airport customers and has a long and proud heritage in the Czech Republic, where operates on three locations: Prague, Olomouc and Brno. Company's portfolio of clients includes worldwide space agencies and prime contractors as well as commercial suppliers.

FE FIELDS OF EXPERTISE

Systems required for accurate momentum control, pointing, vibration isolation, guidance and navigation, semi-conductors, data control and other satellite, launch vehicle, missile and interceptor products.

Integrated Vehicle Health Management systems that analyze total-vehicle data, diagnose problems, recommend corrective actions, and verify return-to-health data.

Radiation hardened electronics and process controllers for varied space applications including the International Space Station and Satellites.

SP SPACE PROJECTS, PRODUCTS, SERVICES

IRIS-ANTARES – AeroNauTicAl REsources Satellite based.

ESPRIT – Emerging System ConcePts foR unmmanned aIrcraft system command & control via satelliTe.

CERES – Certification Requirements and Performance Standards of Satcom Communication Links for RPAS/C2/ATS/D&A.

UAIM – User Autonomous Integrity Monitoring.

HiPerTank – High Performance Tanks with In-situ Health Monitoring.

MiniIMU – Miniature MEMS Based IMU Feasibility Demonstrator.

UWB – Ultra-Wideband as a MultiPurpose Robust and Reliable Wireless Technology for Testing, Spacecraft and Launcher Communications.

AEROSPACE NAVIGATION RECEIVER – Center of Competence programme of the Technology Agency of the Czech Republic.

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www.indracompany.com

GENERAL DESCRIPTION

INDRA Czech Republic is a consulting company providing comprehensive technological solutions and services in space, telecommunications, utilities, energy, public administration, transportation, healthcare and defense sectors. The solutions and services cover the full range of corporate information technologies, from the analysis, design and development of applications, implementation, testing, all the way up to maintenance and outsourcing.

FIELDS OF EXPERTISE

One part of Indra's research activities is concentrated at development centers and software labs. These units work as advanced laboratories offering the latest technological trends for solutions based on the customer's needs.

SPACE PROJECTS, PRODUCTS, SERVICES

Euclid dark mission for universe – central software & critical software for critical infrastructure.

Innovation Centre for Diagnostics and Application of Materials
Department of Materials Engineering
Faculty of Mechanical Engineering
Czech Technical University in Prague

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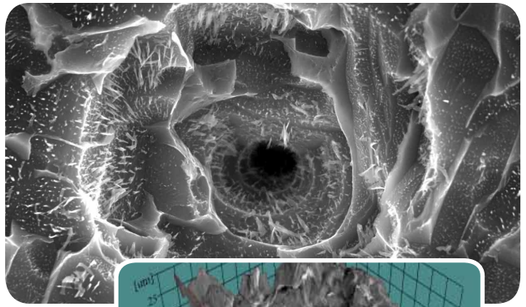

GENERAL DESCRIPTION

Microscopy analysis of structural phases of materials – titan and titanium alloys, corrosion-resistant and high-alloy steels, surface engineering including custom-made coatings – DLC and PVD coatings for materials under the corrosion, ablation, erosion and cavitation effects, mechanical inputs for computational modelling of stress-strain conditions.

Innovation Centre for Diagnostics and Application of Materials
Department of Materials Engineering
Faculty of Mechanical Engineering , Czech Technical University in Prague

FIELDS OF EXPERTISE

Light microscopy – polarization light microscope equipped with Nomarski contrast and a CCD camera, hardness testing, tribology, high resolution scanning electron microscopy, mechanical properties testing on Instron 5582 universal tensile testing machine, coating technology by Hauzer Flexicoat 850 coating machine, impact testing, cavitation.

SPACE PROJECTS, PRODUCTS, SERVICES

Nanocomposite films and nanoparticles prepared in low pressure plasma for surface modifications.

Research of unconventional joints of PP-R and metals or PP-R and perspective plastic materials of depressed creep tendency.

Research of causes of production defects of heavy forgings for ship and power station industry.

Diagnostics of materials.

Institute of Atmospheric Physics
Academy of Sciences of the Czech Republic

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GD GENERAL DESCRIPTION

The Institute of Atmospheric Physics ASCR (IAP) is a public research institution oriented toward basic research of the atmosphere from the boundary layer, up to the ionosphere, magnetosphere, and interplanetary space. Approximately 40 employees (50%) are active in experimental and theoretical space research areas, participating on projects and spacecraft missions of the European Space Agency, other space agencies and on ground-based measurements related to space research.

Institute of Atmospheric Physics
Academy of Sciences of the Czech Republic

FE FIELDS OF EXPERTISE

Research in space weather, global changes in the upper atmosphere and ionosphere, dynamics of the stratosphere, long-term trends in ozone laminae and ionosphere modeling, space plasma physics, ionosphere and magnetosphere of the Earth and planets of the Solar System and the solar wind.

In-situ experimental measurements, data analysis, theory and numerical simulations, design of several scientific instruments for future measurements onboard spacecraft.

SP SPACE PROJECTS, PRODUCTS, SERVICES

Solar Orbiter – Time Domain Sampler module for the Radio and Plasma Wave instrument.

JUICE – Co-PI institute for the Radio and Plasma Waves Instrument.

Taranis – IME-HF analyzer.

Resonance – Instruments ELMAVAN (electromagnetic waves) and REPIN (plasma parameters).

Luna-Glob – Wave analyzer LEMRA-L for Lunar Orbiter.

Solar sensors for attitude control successfully working on several spacecraft missions.

Data analysis collected by previously launched spacecraft instruments – Magion series, DEMETER, Proba-2, Cluster, Stereo, Van Allen Probes, Polar and Cassini missions.

Spacecraft telemetry data reception at the Panska Ves station.

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GD GENERAL DESCRIPTION

The Institute of Botany, ASCR, established in 1962, carries out research at the level of species, populations and plant communities. Currently, it is especially concerned with biodiversity and evolutionary trends among plants, the invasive behavior of species, responses of plants and vegetation to environmental changes and the coexistence of various species in the ecosystem. Applied research is focused on biotechnology, biofuels, bioindication and revitalization.

FE FIELDS OF EXPERTISE

Space biology
- evaluation of physiological status of photosynthetic (micro) organisms
- studies of adaptation/acclimatization mechanisms to various stresses

Regenerative life support systems
- algal mass cultivations
- mykorrhizal symbioses
- growth characteristics and primary production measurements
- algal assays and cyanotoxine detection
- bioremediation and revitalization

Astrobiology
- isolation, cultivation and characterization of extremophilic phototrophic (micro)organisms
- detection of limits of survival
- studies of adaptation/acclimatization mechanisms to various stresses
- in situ ecophysiological measurements in extreme environments

SP SPACE PROJECTS, PRODUCTS AND SERVICES

ArtEMISS – Arthrospira sp. gene Expression and mathematical Modelling on cultures grown in the International Space Station.

CAREX – Coordination Action for Research Activities on Life in Extreme Environments.

Evaluation of effects of radiation on algae and cyanobacteria.

Institute of Experimental and Applied Physics
Czech Technical University in Prague

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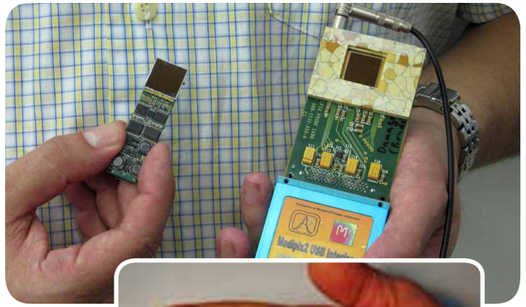

GD GENERAL DESCRIPTION

The Institute of Experimental and Applied Physics (IEAP) is a scientific academic unit of the Czech Technical University (CTU) in Prague oriented on the physics of the microworld and physics applications. The IEAP was founded in 2002 as the main unit of the CTU for experimental fundamental research in particle and nuclear physics and applications.

Institute of Experimental and Applied Physics
Czech Technical University in Prague

FE FIELDS OF EXPERTISE

Instrumentation for position sensitive and spectroscopic detectors of ionizing radiation, signal processing, data acquisition, methods and techniques of radiation imaging. Nuclear and neutron physics, radiation spectroscopy and radiation imaging.

SP SPACE PROJECTS, PRODUCTS, SERVICES

Miniaturized high resolution thermal neutron camera in frame of the Medipix Collaboration.

Wide energy range gamma-ray station for testing and calibration of gamma-ray detectors.

Neutron facilities in Czech Republic for calibration and testing of European Space Agency compliant neutron-sensitive devices in collaboration with the Czech Metrology Institute in Prague and the Nuclear Physics Institute of the Academy of Sciences of the Czech Republic.

Institute of Geology,
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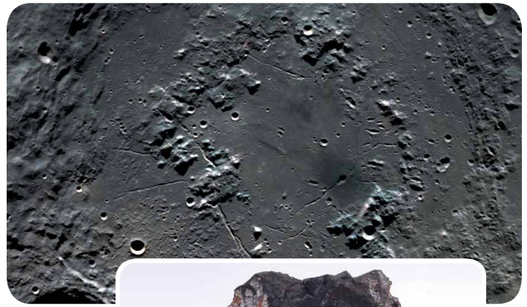

GD GENERAL DESCRIPTION

Institute of Geology ASCR is a medium-sized research center which main purpose is to gain, interpret and integrate the knowledge of our Earth and other Solar System objects.

Institute of Geology,
Academy of Sciences of the Czech Republic

FE FIELDS OF EXPERTISE

Planetary geology, geophysics and exploration, impact cratering, extraterrestrial material analysis, simulations of planetary processes and space environment in laboratory.

SP SPACE PROJECTS, PRODUCTS, SERVICES

REGOLITH – Laboratory Simulations of Space Weathering, the Role of Iron Nanoparticles in the Reflectance Spectra of Asteroids. CZ-USA bilateral research project.

MSM – Magnetic Susceptibility Meter for Planetary Regolith Composition Studies. Instrument development for robotic space exploration.

CLASS – Center for Lunar and Asteroid Surface Science, research institute under NASA Solar System Exploration Research Virtual Institute (SSERVI) program.

Institute of Psychology
Academy of Sciences of the Czech Republic

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GENERAL DESCRIPTION

A part of the institute deals with psychological research on space exploration since the early eighties of 20th century. The research group was initially a department of the Institute of Physiology of the Czechoslovak Academy of Sciences, since 1992 has been incorporated in the Institute of Psychology, the Academy of Sciences of the Czech Republic. In 2011, the Institute of Psychology, together with QED Group and University of South Bohemia, formed the Center for Space Research.

Institute of Psychology
Academy of Sciences of the Czech Republic

FIELDS OF EXPERTISE

Effects of hypo and hypergravity on the human body, and the dynamics of small groups in the condition of isolation and confinement.

SPACE PROJECTS, PRODUCTS, SERVICES

HUBES-1995 – HUman BEhavior in Space simulation studies.

EKOPSY-96 – Moscow-based experimental spaceflight simulation following upon the HUBES experiment.

MARS-500 – monitoring the behavior and actions of the crew isolated for 520 days in space module in the simulation flight to Mars.

Investigation of social and cultural aspects of adaptation of the crews under extreme environments – cooperation with the Russian academy of sciences in years 2012-2014.

Monitoring of space crew interactions during extended space flight, cooperation with the Institute of Biomedical Problems.

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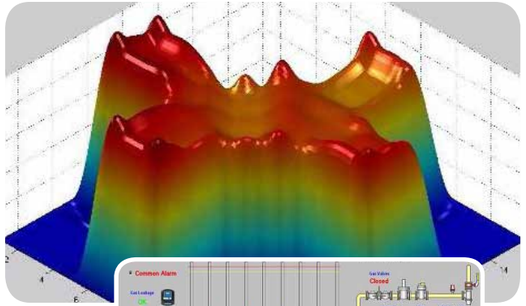

GD GENERAL DESCRIPTION

Kybertec, s.r.o. is supplier and development organization for telematics in the field of industry, traffic telematics, R&D. We are able to develop special software. With universities cooperating we offer also applications of advanced identification systems methods, modelling, artificial intelligence, optimal control and data analysis. Kybertec, s.r.o. was founded in 2003 as a new company, which makes use of prolonged experience and knowledge in the field of industrial control systems, research and development in the artificial intelligence and math modelling and simulations areas.

FE FIELDS OF EXPERTISE

Advanced software development methods and tools, in-flight monitoring, modelling development and IT infrastructure, distributed and decentralised operations, computational fluid dynamics (CFD), mission control systems, ground station monitoring & control, Earth observation infrastructure, data evaluation, analysis and reporting, test automation.

SP SPACE PROJECTS, PRODUCTS & SERVICES

AEROFAST – AEROcapture for Future spAce tranSporTation.

RASTAS SPEAR – RAdiation-Shapes Thermal protection investigAtionS for high SPeed EArth Re-entry.

ATMOP – Advance Thermosphere Modelling for Orbit Prediction.

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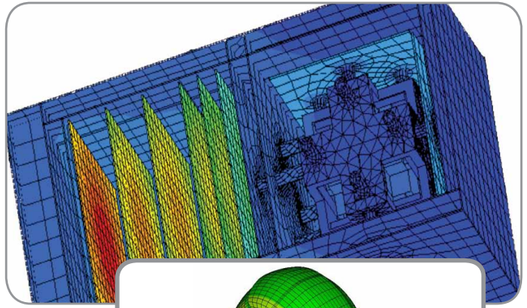

GENERAL DESCRIPTION

L.K. Engineering, s.r.o. (LKE) provides engineering services in mechanical area. The core activities are focused on design and analysis using advanced engineering computation.

L.K. Engineering

FIELDS OF EXPERTISE

Thermal control design/analysis, structural static/dynamic analysis, thermo-elastic calculation, multibody dynamics analysis (mechanism), fracture mechanics, mechanical life evaluation, computational fluid dynamics analysis, flow induced vibration and deformation (FSI), heat transfer due to a convection, electro-mechanical simulation.

SPACE PROJECTS, PRODUCTS, SERVICES

Thermal stability of SWARM Micro-accelerometer.

Thermal and structural analysis of ACES/ELT – European Laser Timing.

Real-time extrapolation tool for TV/TB spacecraft thermal testing.

CFD and thermal analysis of E-ELT – European Extremely Large Telescope.

Computational methodology for high speed Panel Flutter.

Laboratory of Experimental Satellites
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Faculty of Electrical Engineering and Communication
Brno University of Technology

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GD GENERAL DESCRIPTION

Department of Radio Electronics covers a wide range of topics, particularly, network theory, signal processing, antennas, microwaves, terrestrial, mobile and satellite communication. Besides of educational activities also research and development in these fields are provided.

Laboratory of Experimental Satellites
Department of Radio Electronics
Faculty of Electrical Engineering and Communication
Brno University of Technology

FE FIELDS OF EXPERTISE

Research design and development of antennas, weak signal reception techniques, low noise amplifiers, RF and microwave circuits, signal processing, satellite telemetry gathering, satellite communication, satellite ranging.

SP SPACE PROJECTS, PRODUCTS, SERVICES

Phase 3D – development of two onboard L-band receivers for AMSAT satellite.

Development of telemetry gathering and commanding ground station for experimental HEO / LEO satellites. Fully remote control of the commanding station is possible.

PCSAT-2 – development of receiver for digital communication transponder in cooperation with U.S. Naval Academy - Satellite Laboratory, installed on ISS for one year testing period.

Phase 3E – a new on board coherent signal processing receiver with command detector is currently developed for new AMSAT HEO satellite.

PSAT – Two narrow band transponders for rf signal monitoring are currently developed for CubeSats in the frame of joint project with U.S. Naval Academy.

GENSO – Ground Station. The telemetry gathering and commanding station ESL has been involved by ESA into ground segment of GEOID/HUMSAT project.

Laboratory of FT and Laser Spectroscopy
J. Heyrovsky Institute of Physical Chemistry
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GENERAL DESCRIPTION

In our laboratory the high resolution spectroscopy in the IR/VIS/UV regions is used in a wide range of applications (analysis, basic spectroscopy, reaction dynamics, plasma, characterization of lasers). Laboratory is equipped by two FT spectrometers: Bruker 125 and the unique continual time resolved spectroscopy set-up using Bruker 120 spectrometer, further grating and photo-acoustic spectrometers using semi conductor lasers and various

Laboratory of FT and Laser Spectroscopy
J. Heyrovsky Institute of Physical Chemistry
Academy of Sciences of the Czech Republic

arrangements for studies of plasma and transient molecular ions, radicals and atoms reaction dynamics.

FIELDS OF EXPERTISE

Emission and absorption time resolved spectroscopy, plasma chemistry, reaction dynamics and chemical kinetic modelling, laser spectroscopy.

SPACE PROJECTS, PRODUCTS, SERVICES

Can laser plasmas produce chiral molecules? Research on the formation of chiral organic molecules from inorganic gases in planetary atmospheres.

Theoretical and experimental studies related to the prebiotic chemistry of nucleic acids.

Fourier transform semiconductor laser spectroscopy.

Chemistry of large laser sparks.

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GD GENERAL DESCRIPTION

Originally established in 1933 as the company Optikotechna, Meopta – optika, s.r.o. has grown from its roots as a simple lens manufacturer to a global leader in the areas of imaging and illumination systems for industrial, military and consumer markets. Meopta employs over 2400 highly skilled personnel, allowing the company to offer world-class R&D, Customer Service, Project Management, Manufacturing and Assembly capabilities for nearly all opto-mechanical demands. Providing cost-effective, prompt, reliable and premium quality solutions has grown Meopta to be recognized as the go-to provider for companies demanding complex and innovative systems. ISO 9001 & ISO 14001 certified.

Strategic sub-systems, prism systems, medical-grade imaging devices, military sighting systems and world-class consumer sports optics; these are just some of the solutions we provide to the global marketplace.

Meopta – optika

FE FIELDS OF EXPERTISE

Optical and mechanical production, assembly, research & development, optical systems design, thin film coating design, mechanical components design, measuring methods design, spectral and interferometric measurements.

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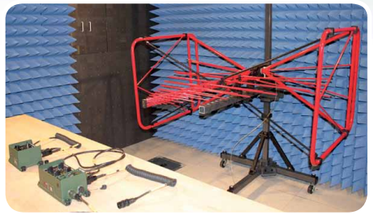

GENERAL DESCRIPTION

The company MESIT pristroje spol. s r.o. is involved in the development, manufacture, sales and servicing of aircraft and military instruments.

MESIT pristroje

FIELDS OF EXPERTISE

Instrumentation for measuring physical variables with aircraft applications.

Sets of instrumentation for measuring the temperature of oil, fuel, exhaust emissions, quantity of fuel and its consumption, fuel pressure, indicators, tachometers, torquemeters, landing gear controls, flap controls.

Sets of instrumentation for lengthwise and crosswise trimming, thermocouples, temperature switches. Converters, static single-phase and three-phase voltage converters up to 7200 VA, 3x 36 V/400 Hz, 3x 115 V/400 Hz. Instrumentation for Controlling Generators. Control boxes for starting and controlling the operation of air generators.

Instrumentation to control deiceing of the engine frame. Engine starter unit. Testing Technology. Portable tester for testing VHF and UHF radios.

Multimedia Technology Group
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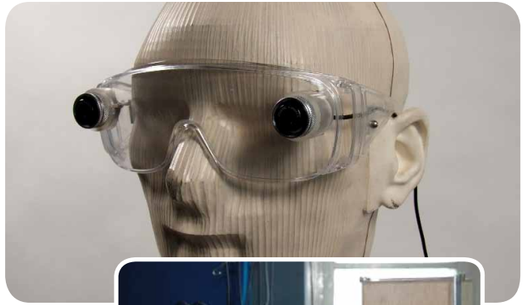

GENERAL DESCRIPTION

The research is focused to image photonics and design of novel image processing algorithms. Our activities are related to space and ground base experiments in astronomy. We are members of international group GLORIA – GLObal Robotic telescopes Intelligent Array for e-Science and BOOTES – Burst Observer and Optical Transient Exploring System.

FIELDS OF EXPERTISE

We have experience with applications of image photonics to space related projects. Expertise of multimedia technology group lies in usage CCD sensors, robotic telescope systems, image data processing and compression.

SPACE PROJECTS, PRODUCTS & SERVICES

BOOTES – Burst Observer and Optical Transient Exploring System. International robotic telescope system for detection of optical transient of GRB.

GLORIA – GLObal Robotic telescopes Intelligent Array for e-Science.

MAIA – Meteor Automatic Imager and Analyzer – design of automatic system for detection weak meteor streams based.

INTEGRAL – INTErnational Gamma-Ray Astrophysics Laboratory. Image data processing and compression for OMC of INTEGRAL satellite.

AUOS, FOBOS-1, FOBOS-2 PROBES – X-ray cameras for the Sun observation under the program INTERKOSMOS.

Nuclear Physics Institute
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GD GENERAL DESCRIPTION

Nuclear Physics Institute ASCR conducts research in a broad field of nuclear physics, experimental as well as theoretical. The research activities are carried out in seven scientific departments: Theoretical Physics, Nuclear Spectroscopy, Nuclear Reactions, Neutron Physics, Radiopharmaceuticals, Radiation Dosimetry, Accelerators.

Nuclear Physics Institute
Academy of Sciences of the Czech Republic

FE FIELDS OF EXPERTISE

Simulation and measurements of cosmic radiation at high-mountain observatories, onboard aircraft and spacecraft, active and passive detectors, radiation protection, individual monitoring of aircraft crew.

Nuclear physics including astrophysically important nuclear reactions and study of the compressed hadronic matter - quark gluon plasma, similar to the state of matter early after the big bang - in the heavy ion collisions, participation at BNL and CERN.

SP SPACE PROJECTS, PRODUCTS, SERVICES

DOBIES – DOsimetry for Biological Experiments in Space.

COST 724 – developing of scientific basis for monitoring, modeling and predicting space weather, detection and dosimetry of particles onboard space and aircraft.

Exposure to cosmic radiation at near-Earth vicinities – space weather influence and radiation protection issues.

Determination of neutron component contribution to the exposure level onboard of spacecraft.

Individual monitoring of aircraft crew, commercial service for Czech aircraft companies.

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GENERAL DESCRIPTION

ProjectSoft is a leading supplier of industrial automation, IT and robotics systems. Its customers comes from various industrial branches and research institutions. The core of its business is realised in the food industry. It also owns and improves know-how of astronomical instruments control. ProjectSoft has developed and is improving own system for the visualisation of technological processes. It provides turn key solutions as well as reconstructions and refurbishments of existing technologies or their parts.

It provides a wide range of services - from machinery through electrical power distribution systems and automation to information systems.

FIELDS OF EXPERTISE

Our main activities in astronomy branch are the reconstruction of the control system of the telescope mounts and domes, including integration of the astronomical devices. Project can also comprise full robotization and remote control of the unit.

SPACE PROJECTS, PRODUCTS, SERVICES

Telescopes

0.65 m > Charles University & Ondrejov

HSFA Solar telescope > Ondrejov

2 m > Ondrejov

2 m > Terskol

2 m > Rozhen

1 m > OGS Tenerife (ESA)

0.4 m > observatory Hurbanovo

0.5 m > Uhersky Brod

0.4 m > Upice

0.5 m private telescope

QED Group

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www.qedgroup.cz

GENERAL DESCRIPTION

We have been providing services in human resources development, education, management and strategic decision making since 1996. Our processes and products are shaped to keep up with the latest research developments, technologies and trends. The company has developed Socio-mapping and the 4Elements personality questionnaire, which are unique on the market. Many of our services are specially tailored to meet the clients' needs, including socio-mapping of teams, coaching, psycho-diagnostics, 360-degree feedback, AC, and DC.

FIELDS OF EXPERTISE

Socio-mapping for monitoring communication within work teams, including those exposed to extreme conditions like space mission crews.

SPACE PROJECTS, PRODUCTS, SERVICES

HUBES – experimental simulation of a long-duration spaceflight conducted in Moscow under the auspices of ESA and IMBP.

EKOPSY – Moscow-based experimental spaceflight simulation following upon the HUBES experiment.

MARS-105 – pilot experimental simulation of a manned mission to Mars held in Moscow under the auspices of ESA and IMBP.

MARS-500 – experimental simulation of a manned Mars mission taking place in Moscow under the auspices of ESA and IMBP.

Radio System Research and Development Center (RSRDC)
Department of Radio Engineering
Faculty of Electrical Engineering
Czech Technical University in Prague

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GD GENERAL DESCRIPTION

The RSRDC is engaged in R&D of radio communication, navigation and radar systems. It focuses on design of advanced receivers for satellite and terrestrial navigation systems, signal processing algorithms, GNSS signal monitoring and analysis.

FE FIELDS OF EXPERTISE

Radio navigation, Global Navigation Satellite Systems (GNSS), eLoran, receiver technology, signal processing in radio navigation, radio communication, radar systems.

SP SPACE PROJECTS, PRODUCTS, SERVICES

REGIOLOC – R&D of safety of life receiver for Galileo, GPS and GLONASS systems, cooperation with AZD Praha.

Galileo E1, E5 signal fast acquisition and reception, optimal signal processing algorithms.

Galileo E5 signal reception, design and implementation of the experimental receiver of GIOVE A/B.

GARDA – Galileo receiver project.

Galileo implementation in the Czech Republic, R&D of the receiver and its applications.

GNSS monitoring station – long term monitoring of GPS and GLONASS satellites, data archiving, dissemination of differential GPS corrections.

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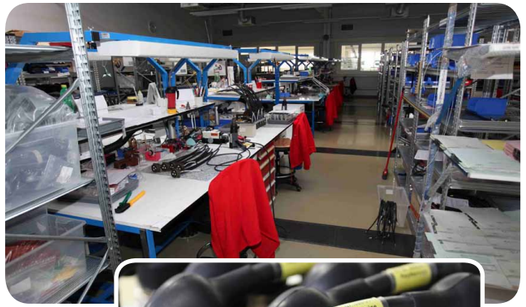

GD GENERAL DESCRIPTION

Ray Service, a.s. is a Czech manufacturing and sales company providing comprehensive solutions in the area of cable assemblies, electromechanical assemblies, electronic equipment and cable component delivery for a wide range of customers. Fifteen years of experience in the field and intensive development have resulted in a strong, modern company that is a reliable and sought-after partner on an international level.

FE FIELDS OF EXPERTISE

Distributor for a number of international cable component manufacturers, for example Tyco Electronics and ITT Cannon on military, aviation and industrial technology markets.

Development and modernization of military equipment for the Czech Army. Civilian activities focused on railway equipment, machine tools and a number of other types of machinery from domestic and foreign manufacturers.

SP SPACE PROJECTS, PRODUCTS, SERVICES

THALES AVIONICS ELECTRICAL SYSTEMS – development and optimalization DC Star test box for testing of DC supply network of aeroplane containing NRC Unit for checking of DC star box.

SIEMENS AG OSTERREICH PSE IND AS – production of special LBS a Power SCOE cables for project GNSS Galileo. The A491-3 SAPS cable with thermal sensor is used to combine all signals from an Agilent Solar.

AIRBUS A320-A380 – production of cable harnesses for Airbus aircrafts in conjunction with companies AOA Apparatenbau, Rica (I.R.C.A), Wittenstein AG.

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GENERAL DESCRIPTION

Research Centre Rez (RCR) is a research organisation, established on 9th October 2002 as a subsidiary company of UJV Rez. The main objective of our research organisation is research, development and innovation in the field of power generation, especially nuclear. RCR owns unique research infrastructure such as experimental research reactors LVR-15 and LR-0 and technological experimental circuits. Significant modernization of the infrastructure is expected to be realized by the end of 2015 due to realization of the SUSEN project, constructed under the frame of the Operational Programme Research and Development for Innovation of the European Regional Development Fund.

FIELDS OF EXPERTISE

Training of new generation of engineers, providing independent technical support for the nuclear regulator (TSO), operating large research infrastructure, research in Safety and reliability of Gen II&III nuclear reactors, development of technologies for Gen IV, development of technologies for nuclear fusion, hydrogen production, design and manufacturing of large research infrastructure SUSEN, Hot cells for Jules Horowitz Reactor, services and development for IT, medical and aeronautical industry.

Research Centre Rez

SPACE PROJECTS, PRODUCTS, SERVICES

Irradiation tests in LVR-15 research reactor Light water research reactor.

Samples can be irradiated in mixed neutron and gamma field in horizontal and vertical irradiation channels.

Irradiation tests in reactor LR-0 Experimental light-water zero-power pool-type reactor offers flexible arrangement of the reactor core for multicore design; reproducibility and description of the irradiation conditions and core parameters can be ensured.

Diagnostics and analytical methods Neutron radiography - NDE testing methods, 3D imaging; neutron diffraction - elastic neutron scattering determination of the atomic and/or magnetic structure of a material; neutron activation analyses (NAA); prompt gamma activation analyses (PGAA).

Cobalt60 irradiation room, in operation by end of 2015. Testing of polymers, electronic devices and equipment, plastic components, cosmic detectors and coatings for space materials will be possible.

Research Institute of Geodesy, Topography and Cartography

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www.vugtk.cz

GENERAL DESCRIPTION

A public research institute that is involved in fundamental and experimental R&D activities in the fields of geodesy, surveying, geographic information systems, cadastre, engineering surveying and geoinformatics. The research activities are carried out in four research departments: Land Cadastre and GIS; Surveying Library and Information Branch; Geodesy and Geodynamics; Engineering Surveying and Metrology.

Research Institute of Geodesy, Topography and Cartography

FIELDS OF EXPERTISE

Geodesy including satellite geodesy, geodynamics, surveying, state cadastre, GIS, engineering geodesy, metrology.

SPACE PROJECTS, PRODUCTS, SERVICES

Analysis and data centres for processing Global Navigation Satellite System data.

Determination of precise orbits of GNSS satellites in the frame of International GNSS Service.

Analysis centre of DORIS satellite system, determination of precise orbits.

Processing of spaceborne gravity and gravity gradient data, evaluation of global gravity field models.

Precise positioning by GNSS, operation of permanent GNSS arrays.

GNSS Meteorology – determination of tropospheric parameters by GNSS observations.

GOCE – software and operational support for the satellite gravity-dedicated mission GOCE.

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GENERAL DESCRIPTION

Rigaku Innovative Technologies Europe s.r.o. (RITE) was established in May 2008 and it is the third R&D affiliated branch of the home company Rigaku Corporation in Tokyo. RITE provides communication with the European market and supports Japanese and American branches of the company. RITE offers comprehensive services in the field of X-ray radiation - R&D, proposal, design and manufacture of precision X-ray and EUV optics and EUV and X-ray detectors for industrial and scientific applications.

FIELDS OF EXPERTISE

Rich and long term experience in the field of X-ray technologies. New and innovative methods for preparation of X-ray optics like multifoil and replicated optics or soller slits and imaging detectors of X-ray radiation.

SPACE PROJECTS, PRODUCTS, SERVICES

Smart focal planes – research activity funded to develop novel optical technologies for future large telescope instrumentation. Development of replication technology of IR mirror.

Novel X-Ray Optics Technologies for ESA X-Ray Astrophysics Missions.

Applications of Kirkpatrick Baez Imaging Systems in Space Technology of precise formation and fixation of X-ray mirrors.

Scientific Group Cryogenics & Superconductivity
Institute of Scientific Instruments
Academy of Sciences of the Czech Republic

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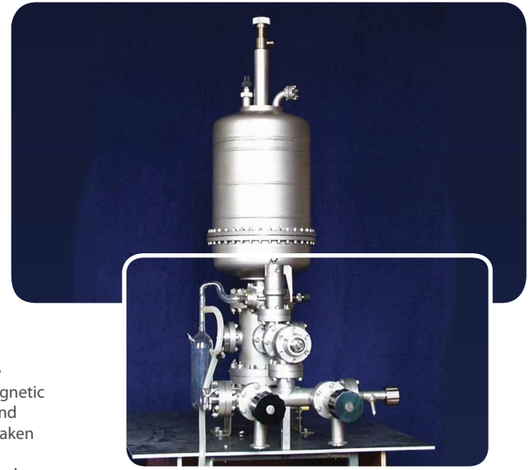

GENERAL DESCRIPTION

The Cryogenics and Superconductivity Group started its activities in the research and development of superconducting magnets for nuclear magnetic resonance, including scientific and technical background for reaching and preserving of low temperatures down to 1.5 K. During years group has taken into account additional fields of cryogenics like vacuum technique, low temperature thermometry, material engineering. Presently the group deals with projects of basic and applied research. The group uses its comprehensive experimental background, in the Czech Republic entirely unique, for verifying and testing scientific and technical theories and knowledge. The group's own helium liquefier is an important and supportive component.

Scientific Group Cryogenics & Superconductivity
Institute of Scientific Instruments
Academy of Sciences of the Czech Republic

FIELDS OF EXPERTISE

Design and realisation of cryogenic systems, low temperature thermometry, determination of thermal-radiation properties of materials, vacuum technique, magnetic fields measurement, superconducting magnets design, safety in cryogenics.

SPACE PROJECTS, PRODUCTS, SERVICES

In Space Propulsiona-1 – Technology study and tests of temperature and vibration sensors at low temperature for electrical fuel pump.

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GD GENERAL DESCRIPTION

Our major activities are focused upon Intelligent Transport Systems, vehicle telematics, safety & security systems and telemetry. We are the leader in fleet management and stolen vehicle recovery in the Czech Republic. Our company also provides a complete pipelines transported media leakage detection and localizing system. We develop location-based services and services based on wireless communication technologies.

FE FIELDS OF EXPERTISE

Indoor and outdoor navigation technologies, end-user terminals development in GNSS user segment, RFID technologies, wireless telecommunication solutions, radio localization, identification systems.

SP SPACE PROJECTS, PRODUCTS, SERVICES

eCall – research activity, in-vehicle unit development.

Dangerous freight monitoring – research activity, complex solution design using GNSS.

SERENUM

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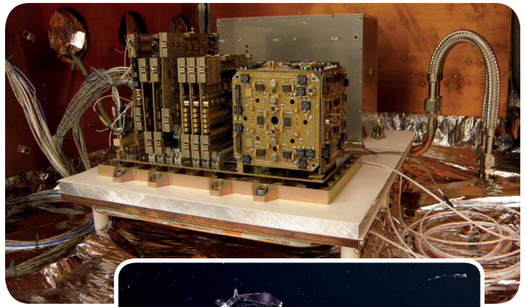

GENERAL DESCRIPTION

Serenum a.s. delivers comprehensive solutions in the area of inertial and measurement systems as well as in the area of time and frequency control. Company's space products include Capacitive Accelerometer, TDC (Time-to-Digit Converter), PDC (Programmable Delay Controler) and Lidar. Serenum a.s. offers also space project consultancy, CAD/CAM design, FEM, thermal and structural analysis.

FIELDS OF EXPERTISE

Custom design and development of electronics
DSP, universal data processing, real-time process control, FPGA design, capacitive and inductive micro-accelerometer.

Measurement and control design
Single photon lidar using special Single Photon Avalanche Diode, motion analysis and control in robotics.

Time and Clock Management
Delay compensation, numerical simulation of timing and photonic devices, precision time metrology, event time, interval and phase measurement, delay compensation and adjustment, accurate frequency/phase synthesis, PDC, TDC.

SPACE PROJECTS, PRODUCTS, SERVICES

PROBA3 – front door assembly design, PA of Optical Objective Assembly for ASPIICS coronagraph.

Flutter – design, CFD and flutter calculations, wind tunnel experiments.

SWARM – delivered 1x EM and 3x FM of capacitive micro accelerometer including EGSE. Design, development, MAIT of flight units, embedded software.

TEASER – flight verification of microaccelerometer during orbit operation.

MIMOSA – vibration qualification testing, development and testing of the selected mechanical parts.

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GD GENERAL DESCRIPTION

Siemens Convergence Creators is the global partner for communication technologies within a broad range of market segments. Combining groundbreaking innovation and decades of experience we provide intelligent solutions to a variety of industries, bridging the gap between technology, processes and services. The company head office is in Prague with a branch office in Brno.

FE FIELDS OF EXPERTISE

Development of Electrical Ground Support Equipment (EGSE), software development for the ESA ground station and Mission Control System (MCS), software development for the Earth observation services infrastructure, development, evolution, customisation and maintenance of the Siemens Carrier Monitoring System – SIECAMS.

SP SPACE PROJECTS, PRODUCTS, SERVICES

Sentinel-4 UVN data evaluation EGSE

MTG data handling SCOE

MTG payload data distribution SCOE

Solar Orbiter power SCOE

EGS-CC technologies proof of concept

Advanced integration & test services

DLR SCOS-2000 MCS maintenance

Operational data off-line analysis correlation & reporting System

Ground station automation & off-line operations

Study of SCOS-2000 deployment over WAN

Transient objects for M&C in GSSC/GMMI

Advanced monitoring for a modern generic MCS

The DTL/DML based MCS demonstrator

Decision support and real time EO data management system

Open standard online service

Spatial observation services and infrastructure

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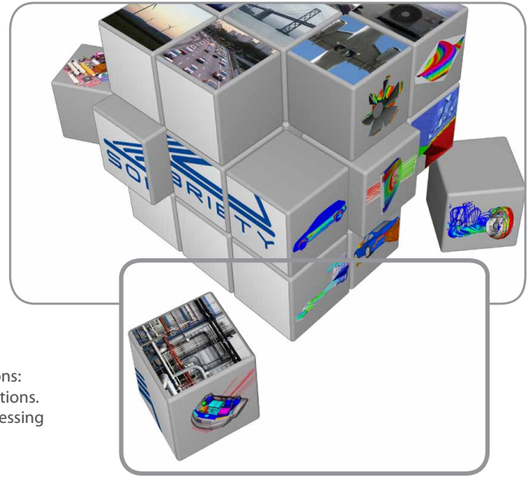

GD GENERAL DESCRIPTION

Sobriety s.r.o. provides expert services in the field of numerical simulations: CFD aerodynamics, thermodynamics and FEM structural analysis calculations. Sobriety further specializes in IT development with focus on image processing and object recognition, optical measurements of object motion and deformation analyses.

FE FIELDS OF EXPERTISE

HVAC, passenger compartment, under hood flow and thermal management simulations, aerodynamics calculations, soiling and advanced multi-phase CFD simulations involving dust particles and mixtures. Possible applications include launcher technologies, habitats and space architecture engineering including computations of inflatable structures.

Non-contact optical deformation measurements of very hot/cold surfaces and tracking of object motion with aid of digital image correlation. IT development expertise in object recognition and image processing applicable for Earth observation.

Typical examples of solved projects are simulations of internal environment for reentry vehicles or iris life function sensing inside a simulator cockpit.

SP SPACE PROJECTS, PRODUCTS, SERVICES

S.H.E.E. – Self-deployable Habitat for Extreme Environments.

Crystal – self-deployable technology demonstrator.

Lunar Base 10 (LB10) – self-deployable base architecture for lunar pole.

Omicron – orbital hotel concept based on off-the-shelf components.

Space Innovations

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GD GENERAL DESCRIPTION

Space Innovations (SPIN) research studio is focused on human-system integration in extreme environments on Earth and in space. SPIN provides conceptual design solutions and consultancy in areas of cockpit design, spaceship architecture, microgravity/orbital habitats architecture, self-deployable habitat modules design and macrogravity architecture for Moon and Mars.

FE FIELDS OF EXPERTISE

Concept designs for human-system integration in extreme environments and for sustainable living with focus on safety, cognitive engineering, energy efficiency and autonomy. Creation of new research projects supporting human space flight, composition of international and interdisciplinary research teams and organization of outreach and education activities for human space flight.

SP SPACE PROJECTS, PRODUCTS, SERVICES

S.H.E.E. – Self-deployable Habitat for Extreme Environments.

A.S.C.A. – Adaptive Spaceship Cockpit Architecture.

Ikarie XB-1 – terrestrial architecture inspired by Czech sci-fi apartment.

EkoPalac – terrestrial architecture concept utilizing space architecture methodology to reach maximum sustainability.

Crystal – self-deployable technology demonstrator.

F.L.A.S.H. – laboratory cluster for habitat systems experimentation.

SilverBird – rocket plane and cockpit concept design using inside-out human-centered design methodology.

Mars Base 10 (MB10) – self-deployable base architecture for Mars.

Lunar Base 10 (LB10) – self-deployable base architecture for lunar pole.

SinterHab 2.0 – self deployable lunar base.

Omicron – orbital hotel concept based on off-the-shelf components.

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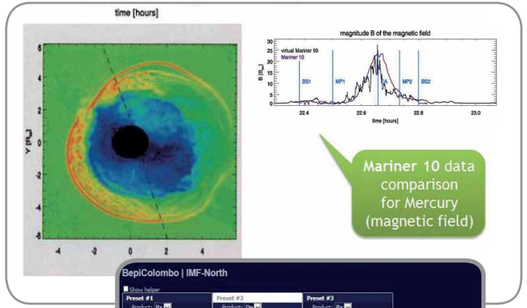

GD GENERAL DESCRIPTION

One of the leading Czech technology companies - established in 1996. Our three divisions focus on the development, distribution and implementation of business systems and portals completely based on modern internet/intranet technologies, security and infrastructure consulting and building special high performance computers.

FE FIELDS OF EXPERTISE

High Performance Computing, software development, computer engineering, space segment simulation tools, Earth observation applications and services.

SP SPACE PROJECTS, PRODUCTS, SERVICES

Amalka – development and support of a software for supercomputer.

FLOREO – Flood Risk Earth Observation Monitoring, system of early prediction of floods and its visual presentation through web portal and map server.

SAFETREE – Satellite Support to Forest Fires Airborne Patrol, creation of forest fire hazards risk maps by targeted monitoring of forest conditions.

SHOCK – Solar and Heliospheric Collisionless Kinetics, kinetic modelling of the Sun to Earth plasma system.

SVUM
Research and Testing Centre

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www.svum.cz

GENERAL DESCRIPTION

Private research company focused on the research and development of metals, plastics, composites and non ferrous materials and testing of properties in accredited laboratories. Laboratories are accredited according to CSN ISO/IEC 17025 standard and also have Certificate from General Electric Aircraft Engines (Cincinnati). Certification and inspection welding body accredited according to CSN EN ISO/IEC 17020 standard.

SVUM
Research and Testing Centre

FIELDS OF EXPERTISE

Static and fatigue testing, fracture toughness, crack propagation, contact fatigue, metallographic, fractografic and X-ray analyses and microanalyses, damage mechanism, creep strength tests up to 1200°C, creep crack growth, long term structural stability, high temperature corrosion, corrosion resistance coatings.

PTFE and teflon products, self lubricated bearing foil metaloplast, high performace permanent magnets, technology of heat treatment, failure analyses of constructional components and investment plants.

SPACE PROJECTS, PRODUCTS, SERVICES

Development of small multipurpose plane D-Smart EV-55.

3D-Light Trans Large scale manufacturing technology for high-performace lightweight 3D multifunctional composites.

Research and damage mechanism and quantification of defects influence on lifetime of composites utilized in heavy duty working conditions.

Face-lifting of small aircraft for the improvement of efficiency and operating economy Particoat – Novel materials tailored for extreme conditions.

The EFFECT of nanoparticles on damage and lifetime of thermoplastic composites.

Long term creep behaviour of intermetallic alloys at high temperatures Research of surface engineering of rolling and sliding bearings.

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GENERAL DESCRIPTION

SYNPO research institute is a Joint Stock Company with more than 60 years tradition in R&D of polymeric materials. Four research teams specialize in synthesis of polyesters, polyurethanes, epoxies and acrylates and formulation of paints, composites and adhesives. One of major research areas is development of nanostructured and hybrid polymers. Analysis, evaluation and testing are carried out in accredited laboratories. SYNPO is currently fully in conformance with standard ISO 9001:2008. SYNPO exclusively provides also transfer of production technologies of developed polymer products from laboratory to production scale. Synpo opened a new Centre of Nano Polymers and Polymers from Renewable Resources in 2009. SYNPO closely collaborates with the Czech industry and companies in the European Union, USA, and Japan.

FIELDS OF EXPERTISE

Research and development areas
Epoxy resins, alkyds, polyesters and polyurethanes, nanostructured polymers, emulsion and solution polymers and acrylic dispersions, product testing and certification in accredited testing laboratories, analytical services in polymer and physical sciences, small-scale manufacturing of specialty resins, curing agents and adhesives.

Applications
Binders, composites for construction, electronic, automotive, aviation and space sectors; laminating resins, casting and sealing compounds, adhesives, sealants and putties, paints and coatings, foams for construction, electronic, automotive, aviation and space industry.

SPACE PROJECTS, PRODUCTS & SERVICES

Liners material study.

Cryogenic thermal insulation foams for fuel tanks of space vehicles.

Antiradar coatings.

High temperature resistance coatings (over 300 °C).

High refractive index polymeric systems.

Coatings with high abrasion resistance and resistance against aggressive liquids.

Rubbers with low gas/liquids permeability for military applications.

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GENERAL DESCRIPTION

SYSGO s.r.o. is the research and development center for software technologies within Sysgo Group headquartered in Germany. There are 3 departments focused on low-level software development in Prague. The RTOS department is focused on PikeOS aerospace projects, the VV department is providing SW verification and validation services and the Embedded Linux Department focuses on Linux based projects and ELinOS Industrial Grade Linux product development.

FIELDS OF EXPERTISE

Real-time operating system technology, bootloaders, drivers, safe and secure embedded virtualization, MILS compliant security according to Common Criteria (CC), software verification according to DO-178B, IEC 61508, EN 50128 or ISO 26262.

SPACE PROJECTS, PRODUCTS, SERVICES

Integrated modular avionics for space

RTEMS on LEON3 processor

PikeOS personalities like ARINC-653 or certified POSIX

Securely partitioning spacecraft computing resources

Safety-critical ethernet for flight data transmission

ARINC-664 Part 7

PikeOS micro-kernel for safety-critical and security-critical applications with certification needs of aerospace & defense industry

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GENERAL DESCRIPTION

We provide our clients with the highest quality Engineering Services in aerospace, railway vehicles, utility vehicles industry, energy industry and other sectors. Engineering services represent design and constructional services, analyses and feasibility studies in segments of structural, mechanical, hydraulic and electric systems. We cooperate on interior modifications of aircraft and railway vehicles including styling. In the field of Information Systems, we cover all phases of the IS lifecycle from requirements analysis to solution design, development, implementation, support and maintenance. Beside the mentioned industry areas, we also pay attention to specific solutions for the state administration. We provide services and solutions in the field of system integration, business processes optimization, documentation management and development of custom information systems.

FIELDS OF EXPERTISE

Engineering – about 90 %
Engineering conceptual studies, preliminary and detailed structural, electrical and systems design, stress and other engineering analyses, manufacturing support.

IT – about 10 %
SW tools development for project, data and company management.

ESA QPA qualification
Object oriented analysis, design methodologies and technologies, programming, artificial intelligence, web-based applications, man-machine interface, data management and business information framework.

SPACE PROJECTS, PRODUCTS, SERVICES

65 % of engineering activities represent projects for aerospace sector, key customer – EADS.

Based on experience from joint cooperation on MSIP proposal for TC Inter-Informatics was invited by EADS RST to participate as their engineering subcontractor for tender for MGSE.

Dutch Space confirmed Inter-Informatics as potential supplier for future CX-2 MGSE.

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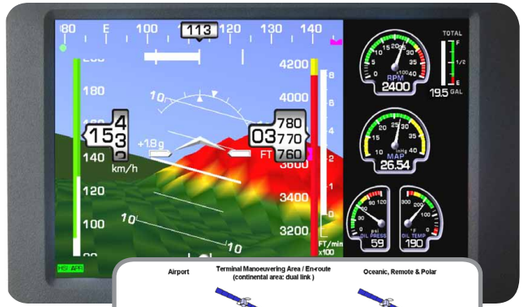

GD GENERAL DESCRIPTION

TL elektronic s.r.o. is based in the Czech Republic at the Hradec Kralove Airport. Founded in 1995, TL elektronic has become a world leader in the development and manufacturing of aerospace instruments and onboard aircraft systems for manned and Unmanned Aerial Systems (UAS). Having a great expertise in measuring different physical quantities, the company has become a valuable partner for those, who require to check their equipment.

TL elektronic teams up with the aerospace departments of the technical universities and industry in Czech Republic for joint design projects.

FE FIELDS OF EXPERTISE

Electronic ground support equipment (SCOE), systems check-out equipment (SCOE), mission control systems, satellite communication, signal analysis, test automation, application and sensors.

SP SPACE PROJECTS, PRODUCTS, SERVICES

Antares – Digital Satellite Communication, subcontractor of Honeywell International, Czech Republic.

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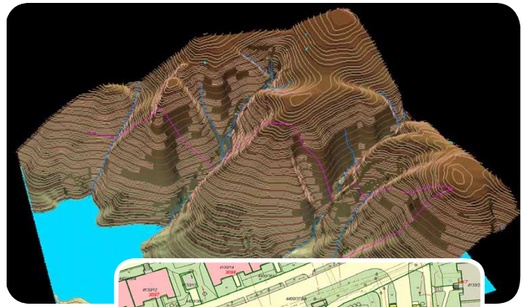

GD GENERAL DESCRIPTION

The company is focused on geographic information systems based on Esri, ERDAS and Open Source technologies.

T-MAPY

FE FIELDS OF EXPERTISE

Our expertise is in complex GIS using different desktop and web technologies, integration with other parts of information system, software development and data processing for public administration, crisis management, transport and logistics, living environment.

SP SPACE PROJECTS, PRODUCTS, SERVICES

T-MapServer – applicable for presentation and analyses of localized data including on-line dynamic data, satellite imagery in combination with GIS functionality, sharing thematic maps among different users, client of GeoPortal.

GeoPortal – complex modular GIS based on service-oriented architecture, OGC standards applicable for complex GIS for both special internal users and general public, integration of different parts of information system, viewing, editing, analyses of localized data.

NAVIS – desktop GIS/navigation/dispatcher application of the new concept applicable for stand-alone GIS client for special purposes without necessity to be connected to Internet/intranet.

Custom software development – web and/or desktop map and/or database applications for special internal users and/or the public.

Geodata processing and analyses – processing of spatial data for internal applications, presentation to the public, geomarketing, analyses of data captured in/from the space - satellite imagery, outputs from measure systems.

TOPTEC – Regional Centre for Special Optics and Optoelectronic Systems
Institute of Plasma Physics
Academy of Sciences of the Czech Republic

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www.toptec.eu

GENERAL DESCRIPTION

The centre TOPTEC continues in a long tradition of Optical Development Workshop of Institute of Plasma Physics, ASCR. The Operational Programme Research and Development for Innovations of the EU enabled the Centre to be provided with key technologies and background for research and development of precise optics of the highest quality.

TOPTEC – Regional Centre for Special Optics and Optoelectronic Systems
Institute of Plasma Physics
Academy of Sciences of the Czech Republic

FIELDS OF EXPERTISE

R&D of aspherical optics, thin film optics, adaptive optics, diffractive optical elements, ultraprecise measuring methods, and optoelectronic systems, crystal and X-ray optics, optical systems and methods for particle detectors, fine mechanics.

Precise machining of surface geometry from plane to free form – glass, crystals, plastics, metals.

Precise polishing of the surface from plane to free form – glass, crystals, plastics, metals.

Prototype manufacturing – precise flats, spheres.

Measurement, design, simulations and expert evaluation.

SPACE PROJECTS, PRODUCTS, SERVICES

Interkosmos projects.

Viewfinder for European Solar Telescope.

Narrow band solar tunable filter.

METIS – coronagraph for Solar Orbiter satellite.

ASPIICS – coronagraph on Proba-3 mission.

Infrasens – infrared optical elements.

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GENERAL DESCRIPTION

TTTech Computertechnik AG was established in 1998 as a spin-off of the Vienna University of Technology in Austria based on 30 years of research in Europe and the US. This extensive research and development work provides a mature basis for our core technology to build applications in safety-critical areas. TTTech Computertechnik AG o.s. in Brno was set up in 2011 focusing on chip IP development. TTTech serves four main business segments: Automotive, Aerospace including Space and Defense, Industrial, Off-Highway.

FIELDS OF EXPERTISE

Technology developments and industry specific solutions, either automotive or aerospace/space. Unique expertise in deterministic Ethernet (TTEthernet), DMA and PCI-Express, chip design based on VHDL, verification and validation utilizing simulation and the ALDEC test environment, DO 254 certification, embedded software.

SPACE PROJECTS, PRODUCTS, SERVICES

MPCV – Multi Purpose Crew Vehicle, in close cooperation with Honeywell Inc. and NASA to provide these elements for the NASA Orion program.

ESM – European Service Module, the main activity was supporting Astrium Space Transportation in the development of the for the NASA MPCV.

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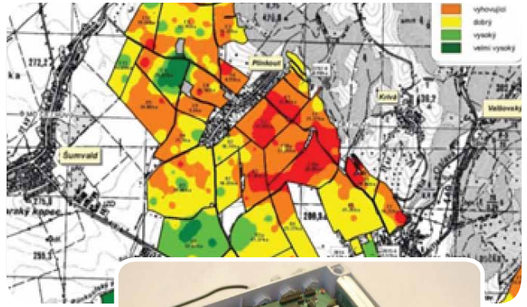

GD GENERAL DESCRIPTION

WIRELESSINFO is a virtual research village which brings together SMEs, university research and industry. The focus of the work is new development, testing and exploitation of services and technologies for spatial data management in areas of rural development including agriculture and forestry, emergency systems, logistics and public administration.

FE FIELDS OF EXPERTISE

Precision farming, Geographic Information System (GIS), Remote Sensing (RS) and Location-Based Services (LBS). European and global standardisation activities, INSPIRE and UNSDI initiatives, OGC standardisation activities.

SP SPACE PROJECTS, PRODUCTS, SERVICES

CO-LLABS – COmmunity-based Living LABS to enhance SMEs innovation in Europe.

Wirelessinfo – implementation of advanced wireless communications into multimedia systems and services.

Premathmod – improvement of methods for data processing and data acces in precision farming.

The VOICE – implementation of collaborative environments with representative applications and services for domain-specific vertical organisations involving the Earth science domain.

AMI4FOR – establishment of ambient mobile inteligence (AMI) for forestry, vinary and agriculture.

AMI@Netfood – innovative extended products and services for rural development.

COLLABORATIONS@RURALS – introduction of Collaborative Working Environments (CWE) as key enablers catalyzing rural development.

FUTUREFARM – vision of farm of tomorrow in European Union.

NAVLOG – IP based navigation and logistic systems.

EarthLookCZ – integration into international cooperation and international activities of GMES, support for GMES implementation in the Czech Republic.

AGRISENSOR – cartographic visualization of agricultural sensor based information.

AgriXchange – a common data exchange system for agricultural systems.

COIN – COllaboration and INteroperability for networked enterprises.

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CZECH SPACE OFFICE

Czech Space Office is a non-profit organization founded in November 2003. Having staff of ten people, the CSO provides support to Czech space science, education, R&D and business sectors and serves as a contact point towards the international space community.

CSO carries out a broad range of activities at national as well as international level. It provides consulting, advisory and networking services to national government bodies, commercial companies, universities or research institutions. For foreign organizations especially, CSO offers matchmaking and analyses of joint project opportunities with Czech industry and research institutes in space projects. It also represents the Czech Republic at international events and in various European space organizations. The CSO officers are delegates of the Czech Republic to boards and committees in ESA and EU. CSO supports student projects and provides training and educational events for schools and universities. CSO also promotes space activities for general public in media.

CSO is in close contact with the industry to secure financing and encourage the future success and growth of the national space sector.

CSO
CZECH SPACE OFFICE

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