

## Annexure-I

### List of CSIR Laboratories and their important programmes

Sno	Name of CSIR Laboratory	Major Programmes/Thrust Areas	Website
1	Advanced Materials and Processes Research Institute (AMPRI), Bhopal, Madhya Pradesh	Design and development of light alloys, metal matrix & Polymetric composites; Sisal Fibre based technologies for eco-friendly wood substitute; Industrial waste utilization technologies; Water resource exploration, assessment and management; CAE-CAD-CAM, Integration and intelligent processing of engineering components; Disaster/ Accident related materials and modeling; Development and characterization of low cost building materials/components; Micro fluidics & fuel cells; Mineral processing & equipment design.	<a href="http://www.ampri.res.in">www.ampri.res.in</a>
2	Central Building Research Institute (CBRI), Roorkee, Uttarakhand	Providing S&T back-up to the problems of buildings and construction industries in the areas of housing, building materials, geotechnical & structural engineering, building physics and fire research & testing.	<a href="http://www.cbri.res.in">www.cbri.res.in</a>
3	Centre for Cellular and Molecular Biology (CCMB), Hyderabad, Telangana	In basic research, the areas are- Biotechnology and Biomedicine, Genetics, Molecular Biology, Biochemistry & Biophysics, Genomics, Bioinformatics;  Under socially relevant research, the areas are- DNA Fingerprinting, Conservation of endangered animals (wildlife), Molecular Diagnosis (Chromosome & DNA), Genetic diversity in tribal population in India	<a href="http://www.ccmb.res.in">www.ccmb.res.in</a>
4	Central Drug Research Institute (CDRI), Lucknow, Uttar Pradesh	The institute's basic objective is discovery and development of new drugs and contraceptive agents, and development of innovative, economic and environment friendly process technologies for known drugs and drug intermediates. The thrust of research is on tropical diseases, cardiovascular disorders, metabolic diseases, and some other problems such as ulcers. Synthetic routes as well as natural products are explored to obtain drugs. Natural products explored include terrestrial plants including Indian traditional remedies, and marine flora and fauna for search of novel molecules for drug development. The institute is equipped with latest facilities, infrastructure and expertise to utilize both conventional as well as target-based molecular approaches utilizing inputs of molecular and structural biology, genomics, proteomics, bioinformatics, etc. and by utilizing high throughput technologies.	<a href="http://www.cdri.res.in">www.cdri.res.in</a>
5	Central Electrochemical Research Institute (CECRI), Karaikudi, Tamil Nadu	Fundamentals and Applied Research in the field of electrochemical power systems comprising batteries and fuel cells, corrosion science and engineering, electrochemicals, electrochemical material science, electrochemical instrumentations, electrochemical biosensors, industrial metal finishing and electrochemical pollution control.	<a href="http://www.cecri.res.in">www.cecri.res.in</a>
6	Central Electronics and Engineering Research Institute (CEERI), Pilani, Rajasthan	Microelectromechanical Systems (MEMS) and Sensors, Photonic Components and Sub-system, Special Electron Tubes, Electronics for Society, Environment and Industry, Nano-Electronics.	<a href="http://www.ceeri.res.in">www.ceeri.res.in</a>
7	Central Food and Technological Research Institute (CFTRI), Mysore, Karnataka	Development of food products and processes for optimal utilization of country's agricultural produce; Value added convenience products; upgradation of traditional food technology & development of appropriate technologies for	<a href="http://www.cftri.com">www.cftri.com</a>

		reducing/ eliminating post-harvest losses and shelf- life studies, biotechnology; basic research related to food additives, flavours, colorants, pre and probiotics, physical properties of foods, micronutrients, food toxicity and safety, food microbiology, food chemistry, enzymatic and molecular biology, bioactive materials, food packaging, GM food analysis and nutrigenomics.	
8	Central Glass & Ceramics Research Institute (CGCRI), Kolkata, West Bengal	Development of different varieties of specialty glasses including optical glass, optical materials, engineering and high temperature materials, ceramics for health care, ceramics for energy and environment, ceramic membrane technology, composites, low-cost building materials and traditional ceramics.	<a href="http://www.cgcri.res.in">www.cgcri.res.in</a>
9	Central Institute of Medicinal and Aromatic Plants (CIMAP), Lucknow, Uttar Pradesh	<p>Conservation and utilization of genetic resources of medicinal and aromatic plants; Bioprospection and development of technologies for therapeutic, nutraceutical, agrichemical and health care products; Bio-village approach for mission programme on technology dissemination in geranium, rose, mints, rosemary and <i>Cymbopogon</i> grasses; Development of improved varieties and their agrotechnologies for priority plants.</p> <p>Development and up-scaling of processing technologies for in-demand and value added products; plant genomics and biotechnological improvements in <i>Catharanthus</i>, <i>Withania</i> and <i>Mentha</i> species; Plant tissue culture technology for developing high throughput regeneration and secondary metabolite production; Integrated nutrient and pest management strategies leading to near organic farming; Basic research in selected medicinal and aromatic plants for future exploitation. State-of-the-art research facility for biotechnology, quality and analytical testing.</p>	<a href="http://www.cimap.res.in">www.cimap.res.in</a>
10	Central Institute for Mining & Fuel Research (CIMFR), Dhanbad, Jharkhand	<p>Development and adaptation of mass production technology in underground mining for safe and economic extraction of thick and/or steep seams.</p> <p><b>Mines safety:</b> Monitoring for gas and fire; Development of wireless multimedia communication for Indian mines; Application of 'Robots' in difficult and risky situations; Detection and mapping of old and unapproachable workings and stabilization of unstable areas; Providing scientific support to 'Disaster Management' specially in underground coal mines.</p> <p><b>Environmental issues:</b> Utilisation and disposal of fly ash; Developing a numerical-cum-statistical model for projecting environmental impacts of mining operation; Wasteland management in mining areas.</p> <p><b>Alternative energy sources:</b> Coal Bed Methane (CBM); Underground Coal Gasification (UCG).</p> <p>Perfecting ground control technology for tunneling &amp; underground caverns; Augmentation of better indigenous reductant for steel making and other metallurgical purposes for inferior coals;</p> <p>Design and development of energy efficient coke oven including power generation from waste heat; Development of coal-based value added carbons of varied specification; Reduce dependence on petroleum feed stocks through conversion of coal or organic wastes into synthetic fuel and other chemicals/feed stocks.</p>	<a href="http://www.cimfr.nic.in">www.cimfr.nic.in</a>
11	Central Leather Research Institute (CLRI), Chennai, Tamil Nadu	TDS control in leather processing, value Addition and cost control, Eco Benign leather processing, Material optimization, standardization and productivity enhancement studies, IT Enabled solutions for the leather	<a href="http://www.clri.org">www.clri.org</a>

		<p>products sector, New materials with improved properties product development and adaptation studies, Design, Trend forecasting and industrialization of traditional art based products.</p> <p>Technological application for management of solidwastes from tanneries and effluent treatment plants and bioenergy generation. Study on econometric on environmental compliance of SMEs. Development of new methodologies and routes for organic synthesis and studies on better utilization of natural products. Development of newer tanning systems and leather processing methodologies. Biomaterials development and testing. IPR Management and tools and techniques for in-house IP acquisition &amp; business processing, Tools and techniques for in-house applications of project management, Academic education and vocational training programmes in capacity building, Innovation &amp; design of new training programmes.</p> <p>Technology Standardization of Bioresources for &amp; from leather, Environment Friendly Leather Processing, Development of specialty polymers- Leather Composites, Industrial Waste Minimization and cleanup - Parchment like leather material from chrome shavings.</p>	
12	Central Mechanical Engineering Research Institute (CMERI), Durgapur, West Bengal	Robotics and Mechatronics, Advanced Manufacturing Technology, Rapid Prototyping and Tooling, Energy and Process Plants, Farm Machinery and Post Harvest Technology; Life Assessment Studies.	<a href="http://www.cmeri.res.in">www.cmeri.res.in</a>
13	Central Road Research Institute (CRRI), Delhi	Characterisation and development of pavement materials, Pavement design and analysis, Pavement performance and maintenance management, Geotechnical investigation and ground improvement, Use of waste and marginal materials, Natural hazard management (landslide), High performance materials for roads and bridges, Bridges design and evaluation (including prestressed and cable stayed), Corrosion studies for bridges, Instrumented monitoring of bridges, Bridge maintenance management system, Bridge inspection and rehabilitation, Highway planning and asset management, Rural road network planning, GIS and remote sensing applications to highway planning and traffic engineering, Travel demand analysis and modeling, Road traffic safety and capacity, Transport economics and project appraisal, Social and environmental impact assessment, Intelligent transport system, Air quality modelling and source apportionment, GHG emission inventory and analysis, Development of instrumentation for highways and bridges.	<a href="http://www.crridom.gov.in">www.crridom.gov.in</a>
14	Central Scientific Instruments Organization (CSIO), Chandigarh	<p>Opto-Electronics (including Coherent Optics); Agri- Electronic Instrumentation; Instrumentation for Geo- Science &amp; Disaster Mitigation; Medical Instrumentation; Micro Electro Mechanical Systems (MEMS) and Sensors for Diverse Applications; Instrumentation for Energy Management, Condition Monitoring and Quality Control;</p> <p>Biomolecular Electronics &amp; Nanotechnology; Environmental Monitoring Instrumentation; Analytical Instrumentation; Plant &amp; Machinery for Railway Safety; Services (Services &amp; Maintenance of Instruments, Special Manpower Training, Testing &amp; Calibration of Instruments/Components, Energy Audit, etc.); Networked Programmes for CSIR including Electronics for Societal Purposes; development of Key Technologies for Photonics and Opto-Electronics; Custom Tailored Special Materials etc.</p>	<a href="http://csio.res.in">http://csio.res.in</a>
15	Central Salt and Marine Chemical Research Institute	<i>Inorganic chemicals:</i> (i) Development of technologies for recovery of common salt, industrial salt, iodized salt, low sodium salt, and marine chemicals like potash,	<a href="http://www.csmcri.org">www.csmcri.org</a>

	(CSMCRI), Bhavnagar, Gujarat	<p>bromine, and magnesium chemicals. Design and layout of salt farm including salt engineering. Proto type device for improvement and quality control of salt. (ii) Development of technologies for specialty siliceous chemicals, zeolites, clayswaste utilization for value added products, recovery of metals from solid wastes. <i>Polymer and Membrane Science</i>: Preparation of reverse osmosis and electro dialysis membrane for safe drinking water. Devices for domestic water purification, concentrating aqueous herbal extracts, animal powdered desalination units. Development of spiral elements for large-scale sewage water treatment plants. Developments of resins for brine purifications, resins for nitrate, arsenic and fluoride removal.</p> <p><i>Bio-salinity</i>:(i) Identification and cultivation of commercially important seaweeds, development of an innovative techniques for simultaneous preparation of carrageenan and liquid fertilizer, quality agarose, bacteriological grade agar, C-phycocyanin (Bio- pigment). Studies on environmental audit and marine impact assessment for scheduled Industry. (ii) Restoration of ecology of wastelands and saline lands. Basic research on plant physiology, biochemistry, molecular biology, agriculture chemistry and genetics. Assessment and performance of desert economic and halophytes plants.</p>	
16	Institute of Genomics and Integrative Biology (IGIB), Delhi	Allergy and Infectious Diseases, Genomics and Molecular Medicine, Gene Expression Profiling & Comparative Genomics, Genome Informatics, Proteomics and Structural Biology, Environmental Biotechnology, Bioactive molecules and Technology Development Unit, Design and Synthesis of Nucleic Acid and Peptides.	<a href="http://www.igib.res.in">www.igib.res.in</a>
17	Institute of Himalayan Bioresources Technology (IHBT), Palampur, Himachal Pradesh	Floriculture tea sciences, biotechnologies and natural plant product Conservation Biology Cell and Tissue Culture, Genomics, Proteomics, Natural Products Chemistry, Agro-Chemicals, Chemical Engineering, Plant Virology, Pesticide Residues, Diagnostics.	<a href="http://www.ihbt.res.in">www.ihbt.res.in</a>
18	Indian Institute of Chemical Biology (IICB), Kolkata, West Bengal	Natural products of medicinal, biological and industrial value and synthetic duplication of products of interest; development of innovative immunoassay techniques; gene regulation of hormones and their actions, genetic polymorphisms in pathology in Indian population, understanding the basis of parasitism and development of biotechnologies applicable to the diagnosis and chemotherapy of visceral leishmaniasis; investigation of the molecule basis of pathogenicity of <i>Vibrio cholerae</i> and development of novel approaches towards fertility control and regulation; delineation of the cellular and molecular basis of brain development and genesis and therapy of neurological diseases; investigation of gastric physiology; development of tissue-targeted drug- delivery systems; investigation of the molecular mechanism of biocatalysis; studies on carbohydrates, development of radiopharmaceuticals for myocardial imaging and renal and hepatobiliary studies; protein engineering models for self. Organizational phenomena in living systems, bioinformatics, molecular modelling and development of novel herbal medicines for common diseases.	<a href="http://www.iicb.res.in">www.iicb.res.in</a>
19	Indian Institute of Chemical Technology (IICT), Hyderabad, Telangana	Development of technologies for Pesticides, Drugs, Pharmaceuticals, Organic Intermediates, Speciality and Fine Chemicals, Fluoro Organics. The major areas of interest to IICT are Natural Products Chemistry, Integrated Pest Management, Coal and Energy, Bioinformatics, Biology and Biotechnology, Gas-based Technologies.	<a href="http://www.iictindia.org">www.iictindia.org</a>
		Nanotechnologies, Molecular Modelling and combinatorial	

		Chemistry, Lipid Sciences and Technologies, Organic Coatings and polymers, Supramolecular Chemistry, Peptidomimetics, Non- viral gene Delivery Systems, Biochemical and Environmental Engineering Sciences, Bio-transformations, Chemical and Engineering Sciences, Mechanical Engineering and Design, Chemical and Bio-evaluation, Simulation, Optimization and Control, Hazard and Risk Analysis Studies, Inorganic and Physical Chemistry, Pharmacology, Chemical and Instrumental Analysis, Catalysis and Material Sciences, Clean and Green Technologies with excellent infrastructure facilities, instrumental facilities, Pilot Plant facilities and Computer Centre.	
20	Indian Institute of Integrative Medicine (IIIM), Jammu, J&K	Agrotechnology of medicinal & aromatic plants, identification/authentication of medicinal plants, synthetic (chiral) and natural product chemistry, herbal drugs, selected biological screening, bioprospecting microbial biodiversity for industrially useful enzymes, molecular biology & gene cloning fermentation technology, quality control and standardization of herbal drugs, establishment of gene bank, bioinformatics, pharmacology phytochemicals/herbal drugs/ nutraceuticals research. Chemical Engineering & Design backup for packaging of technologies.	<a href="http://www.iiim.res.in">www.iiim.res.in</a>
21	Indian Institute of Petroleum (IIP), Dehradun, Uttarakhand	Petroleum Refining technology, development of separation processes, conversion processes, petroleum products applications, development of chemicals and biotechnology.	<a href="http://www.iip.res.in">www.iip.res.in</a>
22	Indian Institute of Toxicological Research (IITR), Lucknow, Uttar Pradesh	Neurotoxicology, environmental health, ecotoxicology, phototoxicology, epidemiology, immunotoxicology, developmental toxicology, cardiovascular toxicology, pulmonary toxicology, environmental carcinogenesis, environmental monitoring and environmental biotechnology heavy metals, industrial dusts and fibres, plastics and polymers, hydrocarbons, pesticides, detergents, dyes and food additives.	<a href="http://www.iitrindia.org">www.iitrindia.org</a>
23	Institute of Minerals & Materials Technology (IMMT), Bhubaneswar, Orissa	Mineral Processing Technology, Extractive Metallurgy, preparation of Special Materials and alloys, Design & Project engineering, preparation of Inorganic and Organic chemicals, Energy & Environment management, Cultivation & Utilization of aromatic, medicinal and other economic plants; and development of new analytical methods.	<a href="http://www.immt.res.in">www.immt.res.in</a>
24	Institute of Microbial Technology (IMTECH), Chandigarh	Molecular biology and Microbial Genetics; protein science and engineering; Fermentation technology including applied microbiology; cell biology and immunology; Operation and maintenance of Microbial Type Culture Collection and Gene Bank - International Depository Authority, National facilities on Biochemical Engineering Research and Process Development Centre and Bioinformatics Centre on Protein Engineering.	<a href="http://www.imtech.res.in">www.imtech.res.in</a>
25	National Aerospace Laboratory (NAL), Bangalore, Karnataka	Advanced Flow diagnostics, High pressure wind tunnel testing, Jet acoustics, Computational flow solutions and techniques for aero and space vehicles, Aerodynamics research on micro air vehicles as well as space vehicles;  Developing airport instrumentation, advanced avionics systems, Control laws for aircraft, Aircraft parameter identification and flight simulator, Aero elastic testing; development of powered glider engines, Combustion engine development for unmanned air vehicle, High speed combustion for hypersonic vehicles, Fuel Cells;  Computational electromagnetic research, Development of	<a href="http://www.nal.res.in">www.nal.res.in</a>



		<p>parallel super computing platform, Acoustics studies on space vehicles and satellites, Surface modification techniques including Nano technology: development &amp; application to aerospace as well as non aerospace areas (non-renewable energy viz., solar), Wind turbine development;</p> <p>Failure analysis and Aircraft Accident Investigation, Full scale aircraft fatigue testing and ground vibration testing, Composite materials characterisation and fabrication, industrial carbon fibre facility, Autoclave development, structural health monitoring, Smart material research and development;</p> <p>Design and development of micro air vehicles, General Aviation aircraft and Civil aircraft.</p>	
26	National Botanical Research Institute (NBRI), Lucknow, Uttar Pradesh	<p>Conservation and conversion of non-crop plant genetic resources into economic wealth with appropriate S&amp;T intervention. Development of value added products. Plant-based Herbal Formulations, Pharmacognosy, Ethnopharmacology, Nutraceuticals, Plant Biotechnology Plant Molecular Biology &amp; Genetic Engineering, Environmental Sciences Biofuel Eco-Restoration, Tree Biology, Biomass Biology, Biodiversity, Biofertilizer, Rehabilitation of degraded soils, mined sites, Agrotechnologies for economically important plants wasteland utilization, Conservation Biology, Floriculture, Medicinal Plants, Eco- education, Bioinformatics, Taxonomy, Biology of Lower Plants, Environmental Monitoring, Phytochemistry, Entomology, Genetics.</p>	<a href="http://www.nbri.res.in">www.nbri.res.in</a>
27	National Chemical Laboratory (NCL), Pune, Maharashtra	<p>Catalysis, biotechnology, organic chemical technology and polymers and other high performance materials. Basic research in chemistry and biochemistry.</p>	<a href="http://www.ncl.res.in">www.ncl.res.in</a>
28	National Environmental Engineering Research Institute (NEERI), Nagpur, Maharashtra	<p>Pollution monitoring &amp; mitigation systems and devices; Industrial waste minimization and cleanup; Developing green technologies for environment; Environmental impact and risk assessment and audit; Molecular environmental nanotechnology; Environmental nanotechnology; Genomics enabled environmental biotechnology; Predictive modeling of multimedia environmental quality; Quantification of environmental complexity; Vulnerability of water resources.</p>	<a href="http://www.neeri.res.in">www.neeri.res.in</a>
29	North-East Institute of Science and Technology (NEIST), Jorhat, Assam	<p>Medicinal Chemistry, Natural Products Chemistry, Synthetic Organic Chemistry, Biotechnology, Medicinal, Aromatic &amp; Economic Plants, Geosciences, petroleum &amp; Natural Gas, Material Science, Coal, Applied Civil Engineering, Chemical Engineering, Cellulose Pulp &amp; Paper and Utilization of Mineral Resources.</p>	<a href="http://www.rrl.jorhat.res.in">www.rrl.jorhat.res.in</a>
30	National Geographical Research Institute (NGRI), Hyderabad, Andhra Pradesh	<p>Seismology, lithosphere, earth's interior and environment, ground water, geophysical exploration and geophysical instrumentation.</p>	<a href="http://www.ngri.org.in">www.ngri.org.in</a>
31	National Institute of Interdisciplinary Science & Technology (NIIST), Thiruvananthapuram, Kerala	<p>Chemistry of Natural products, agro-processing and specialty agrochemicals related to spices and oil seeds, Bioactive compounds from natural sources, Biochemicals and related products through enzyme engineering, materials processing for value addition of clays and beach sand minerals, oxide fine ceramics, metal alloys and composites, simulation of processes, photochemical systems including solar energy conversion, low cost building materials from agro and industrial wastes, calibration of procedures for analysis of toxic pollutants and waste water technology.</p>	<a href="http://www.niist.res.in">www.niist.res.in</a>
32	National Institute of Oceanography (NIO), Goa	<p>International Geosphere-Biosphere Programme, surveys for polymetallic nodules, oceanographic studies of the Antarctic waters, island development programme, coastal zone management, resources and parameters mapping of the EEZ of India, air-sea interaction studies, drugs from the sea, marine</p>	<a href="http://www.nio.org">www.nio.org</a>

		biotechnology, biofouling and corrosion studies, technologies for rural development, development of marine instruments, and development of acoustic and remote sensing techniques for monitoring the oceans.	
33	National Institute of Science Communication and Information Resources (NISCAIR), Delhi	Three major Network Programmes - Traditional Knowledge Digital Library to protect against biopiracy, National Science Digital Library to provide on-line S&T curriculum books to college students and E-Journals Consortia to provide research journals at the scientists desk in all CSIR laboratories; Dissemination of S & T information to Scientific Community; Popularization of Science amongst school children and general public; Spreading IT literacy; Information Resources; Information Products and Services; and Training Programs.	<a href="http://www.niscair.res.in">www.niscair.res.in</a>
34	National Institute of Science and Technology Development Studies (NISTADS), Delhi	IPR: IPR & development studies; ITBT: Information technology and biotechnology: Policy matters and ethical concerns; Innovation policy; INKS: Innovation & knowledge society; TIARA: Technology & integrated assistance to rural artisans; SD: Sustainable development; STEVS: Science-technology-education valuation studies; HPS: History & philosophy of science/Public awareness of science.	<a href="http://nistads.res.in">http://nistads.res.in</a>
35	National Metallurgical Laboratory (NML), Jamshedpur, Jharkhand	Minerals & Metals: Bio-mineral processing for extraction of metal values from ores/concentrate/wastes, Developing capabilities In Advanced Manufacturing Technologies, processing of Polymetallic sea nodules for recovery of valuable metals, Development of an eco-friendly cokeless cupola, Peritectic transformation in multi component iron based alloys during continuous casting, Coal characterization and resource quality assessment, Indigenous technology for optimizing Blast Furnace performance, Mechanical activation in improving the blended cement processing, Developing novel cements based on mechanically activated slag, fuel cells based on hydrogen, innovative technology for titanium extraction, and development of titanium alloys.  Materials: Development of coatings for improved corrosion resistance of steel reinforcement bars Fabrication of oxidation & wear coating by spray technique for aerospace application, ceramic-ceramic/metal brazing alloys, nano-structure for novel electronics, magnetic and optical applications, Fabrication of super hard coatings, Bio-mimetic synthesis for bio material for implants and super paramagnetic particles for diagnostic applications,  Ecology and Environment: Comprehensive assessment of water quality, Reduction in green house emission in metallurgical sector, Development of cleaner processes/technologies for metallurgical industries.	<a href="http://www.nmlindia.org">www.nmlindia.org</a>
36	National Physical Laboratory (NPL), Delhi	Measurements, standards and calibration, electronic & engineering materials, radio and atmospheric physics, cryogenics and superconductivity, applied projects like thin films, optical coatings, xeroradiography, high-pressure metal forming & high-powered ultrasonic systems, and underwater acoustic devices, non-conventional energy devices, and theoretical condensed matter physics.	<a href="http://www.nplindia.org">www.nplindia.org</a>
37	Structural Engineering Research Centre (SERC), Chennai, Tamil Nadu	Structural dynamics, including studies on vibration, blast and impact, earthquake engineering, bridge engineering, steel structures, experimental mechanics, wind engineering, computer-aided analysis and design of structures, fatigue and fracture, structural concretes and concrete composites, towers and tower like structures, health monitoring and safety audit, and repair, retrofit and rehabilitation of structures.	<a href="http://www.serc.res.in">www.serc.res.in</a>
38	CSIR Fourth Paradigm	Mathematical Modelling for Climate, Environmental and	<a href="http://www.cmmacs.ernet.in">www.cmmacs.ernet.in</a>

	<p>Institute {Formerly CSIR Centre for Mathematical Modeling &amp; Computer Simulation (CMMACS) , Bangalore, Karnataka</p>	<p>Engineering Problems, Long-range Monsoon Forecasting, Advance Forecasting of Cyclones, Multi-scale Environmental Modeling</p> <p>Ocean Primary Productivity and Chemistry, Global Ocean Modeling, Earthquake Hazard Monitoring and Modeling, GPS Measurements,</p> <p>Computational Structural Mechanics, Industrial Fluid Flow, Modeling and Analysis of Complex, Physical and Industrial Systems, Network Security and High Performance Computing</p>	
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