CSIR Industry Meet

CSIR-NAL CSIR-CEERI CSIR-CMERI CSIR-NML CSIR-CGCRI CSIR-IIP CSIR-IMMT CSIR-CSIO

Theme – Technologies for Aerospace, Electronics, Instrumentation & Strategic Sectors

18 October 2019

CSIR Knowledgebase for Industries

Venue

S R Valluri Auditorium, CSIR-National Aerospace Laboratories,
PB 1779, Old Airport Road, Kodihalli, Bengaluru 560 017
www.nal.res.in

About CSIR

The Council of Scientific & Industrial research (CSIR) known for its cutting edge R&D knowledgebase in diverse S&T areas is a contemporary R&D organization. Having pan –India presence, CSIR has a dynamic network of 38 national laboratories, 39 outreach centres, 3 Innovation Complexes and 5 Units. CSIR's R&D expertise and experience is embodied in about 4600 active scientists supported by about 8000 scientific and technical personnel.

CSIR covers a wide spectrum of Science and Technology – from radio and space physics, oceanography, geophysics, chemicals, drugs, genomics, biotechnology and nanotechnology to mining, aeronautics, instrumentation, environmental engineering and information technology. It provides significant technological intervention in many areas with regard to societal efforts which include environment, health, drinking water, food, housing, energy, farm and non-farm sectors. Further, CSIR's role in S&T human resource development is noteworthy.

Pioneer of India's intellectual property movement, CSIR today is strengthening its patent portfolio to carve out global niches for the country in select technology domains. CSIR is granted 90% of US patents amongst Indian publically funded R&D organizations. CSIR files about 200 Indian patents & 250 foreign patents every year. About 13% of CSIR patents are licensed, a number that is above the global average. CSIR has been ranked ninth amongst a total of 1,207 government institutions, according to the Scimago Institutions ranking World Report 2017. In overall global ranking, CSIR stands at 75th position amongst 5250 institutions worldwide. It is the only Indian organisation, which has found place amongst the Top 100 Global Institutions

CSIR has contributed immensely to the socio economic development of the country over the past seven decades. The indelible ink, country's first baby food 'Amul', indigenous tractor 'Swaraj', two seater aircraft 'Hansa', new generation thrombolytic molecule for affordable health care, bioprocessing technology for leather industry etc., are some of the significant contributions to the nation.

Brief about CSIR laboratories under AEISS theme

There are 8 constituent laboratories under CSIR contributing to the development of Aerospace, Electronics, Instrumentation & Strategic Sector (AEISS). A brief about these laboratories are given below.

CSIR-National Aerospace Laboratories (CSIR-NAL), Bangalore is involved in all the major aerospace programmes of the country, notably the Light Combat Aircraft programme of Aeronautical Development Agency, the Satellite and Launch Vehicle Programs of Indian Space Research Organisation (ISRO) and the Missile Programmes of Defense Research and Development Organisation (DRDO). In the recent years, NAL has

taken up aircraft development programmes like Hansa- NG, 2 seater trainer and small general aviation transport SARAS Mk-2 aircraft to meet the Civil Aviation requirements of the country. There has been an increasing interest in utilization of the NAL's knowledgebase by private industries, for example NAL's Autoclave technology, Electronic Target System – DHVANI & ABHIAS, Multi Zone Hot Bonder (MZHB), NiTi SMA, Composites technology, DRISHTI- Airport runway visibility measurement system etc., have industrial participation. (visit www.nal.res.in for more information)

CSIR-Central Electronics Engineering Research Institute (CSIR - CEERI), Pilani has created a niche for itself in terms of its major contributions in electronics & allied science and engineering covering microwave devices, sensor technologies, VLSI design and Embedded Systems with a high societal and strategic impact. CSIR-CEERI has been in the forefront research with major technologies include; Excitation Control System for Diesel Electric Locomotives, Electronic Instrumentation for Sugar Industry, 150 kVA Single phase to three phase Thyristor Converter for WAM4 Electric Locomotives, High Power S-band Klystron, PWM Amplifier and Electronics for Electromechanical Actuators, C-band 60 W Space TWT, MEMS Acoustic Sensor, Magnetrons for Department of Atomic Energy, etc., During the new millennium, CEERI scaled up its ambitions and took up major initiatives in the field of microwave tubes technologies, MEMS, micro-sensors and non-Silicon technologies. (visit www.ceeri.res.in for more information)

CSIR-Central Glass & Ceramic Research Institute (CSIR-CGCRI), Kolkata CSIR-Central Glass & Ceramic Research Institute (CSIR-CGCRI), Kolkata has pioneered the development of various types of glasses and specialty optical fibers which brought CGCRI into limelight in the international arena. The institute is a premier R & D organisation dedicated to harnessing S & T capabilities in the field of glass, ceramics, fiber optics and photonics, water technologies, refractories and allied materials for the strategic needs and also for rural and societal developments of the country. In the emerging technological scenario, these areas are increasingly becoming important and the institute has been playing a significant role in the developments relating to these sectors and thereby poised to take on the challenges of the future. (visit www.cgcri.res.in for more information)

The core mission of the **CSIR-Central Mechanical Engineering Research Institute (CSIR-CMERI), Durgapur** is to conduct research, develop cost effective, and value added technologies in mechanical engineering and allied domains. The ambit of activities of CSIR-CMERI extends over Advanced Design and Manufacturing; Cybernetics, Electronics & Embedded Systems, Drives & Control; Foundry and Metallurgy; Materials, Processes, Chemistry & Biomimetic; Microsystem Technology; Precision Engineering & Metrology; Precision Farm Machinery; Process Engineering; Surface Engineering & Tribology; Surface Robotics & Mechatronics System Design, Dynamics and Kinematics, Simulation & Analysis, Immersive Visualization; Thermal Engineering and Underwater Robotics. (visit www.cmeri.res.in for more information)

CSIR- Central Scientific Instruments Organisation (CSIR-CSIO) CSIR- Central Scientific Instruments Organisation (CSIR-CSIO) is a multidisciplinary organization having well equipped laboratories manned by highly qualified and well trained staff with infrastructural facilities in the areas of Agrionics; Medical Instrumentation and Prosthetic Devices; Optics and Cockpit based Instrumentation; Fiber/Laser Optics based Sensors & Instrumentation; Analytical Instrumentation; Advanced Materials based Transducers etc. However, institute main focus has always been the strategic sector with its flagship project being Head-Up-Display (HUD). Some of the notable contributions made by the laboratory in the recent past include HUD and its components for a host of aircraft platforms such as LCA-AF, LCA-Navy, Jaguar, HJT-36 and HAWK-I aircrafts, Aircraft Exterior Lights, Drogue Light System for Air-to-Air refueling, Optical Gunsight for Dornier Aircraft, Earthquake Warning System for Delhi Metro and Alarm system for wild life movement along railway tracks. Further the institute has created a niche for itself in the energy monitoring and management sector through development of technologies like Portable energy Audit Tool, Pump Efficiency Monitoring System, Power Quality Analyzer and Building Energy monitoring System. Recently, the institute entered into collaborations with several big industries for finding solutions to their problems in strategic areas. (visit www.csio.res.in for more information)

CSIR-Institute of Minerals and Materials Technology (CSIR-IMMT) has excellent R&D facilities and scientific expertise in conducting basic research and technology oriented programs to address the R&D problems of mining, mineral and metal industries and ensure their sustainable development. The R&D programmes cover the entire value chain of material resources engineering from, (1) Mineral processing, (2) Extractive Metallurgy, (3) Advanced Materials & Processes, (4) Environmental Sustainability to, (5) Process Modelling & Instrumentation Engineering. With regard to meeting the needs of client industries that manufacture strategically important materials and instruments, CSIR-IMMT has developed powder metallurgical techniques for special materials, specialized coating processes for different applications, electro and photo chemical sensors for heavy metal detection, and IOT compatible and machine learning based electronic instruments for mineral processing and metallurgical industries. (visit www.immt.res.in for more information.)

CSIR-National Metallurgical Laboratory (CSIR-NML) R&D focuses on Minerals, Metals and Materials. Through an arsenal of state of the art facilities and infrastructure, and on the strength of its expertise, NML has evolved into a premier Indian organization in the stated areas. NML has the largest creep testing facility in India and one of the largest in Asia. Its materials evaluation and characterization facilities compare with the best in the world. NML has strong presence in Magnetic materials, rapidly solidified alloys, Surface Coatings, Metallic Foams, and many others. Advanced materials processing and post-processing carried out include Mechanochemical activation, Semi-solid processing, Biomimicry, Thermo-mechanical treatments, High Temperature Synthesis, Advanced Joining, Grain boundary engineering, High strain rate forming, and several other techniques. (visit www.nmlindia.org for more information)

CSIR-Indian Institute of Petroleum (CSIR-IIP) develops processes and products for petroleum refining and petrochemical industries, training of personnel in oil and petrochemical industries, and assisting in formulation of standards for petroleum products.

Applied research leading to the development of technologies, products and processes in the area of Petroleum refining, Petrochemicals, Speciality chemicals, IC engines, and Combustion. Almost every refinery in the country has technologies licensed by the institute. SpiceJet on August 27, 2018 has successfully operated "India's first ever biojet fuel flight" developed by the laboratory. (visit www.iip.res.in for more information)

Objective & Scope of the Industry Meet

CSIR over the years has built its expertise and capabilities in various disciplines of Aerospace, Electronics, Instrumentation & Strategic Sector. Its contributions over the last 75 years have enabled it to create a niche for itself in S&T development on these sectors in the country. The need for sharing knowledge between research institution and industry has become increasingly evident in recent years. There has been an increasing interest in utilization of the CSIR laboratories knowledgebase by private industries. To further boost the same, this requires partnership with private industry that encourages repeated interaction, which will contribute in building mutual trusts needed for sustained cooperation and commercial exploitation of knowledgebase and technologies.

With the above backdrop CSIR-NAL in association with CSIR-CEERI, CSIR-CMERI, CSIR-NML, CSIR-CGCRI, CSIR-CSIO, CSIR-IMMT, and CSIR-IIP is conducting an industry meet with the following focussed objectives for the benefit of the industries.

1. Technologies for commercialization: under this it is categorised into;
    a) Technologies ready for commercialization
    b) Technologies developed at lab scale need funding and support from industries for up-scaling
2. Engineering Design & Consultancy Services for the industries
3. Test Facilities with high end services

Outcome & Key Takeaway by Industries

CSIR has moved on the path of repositioning its Research, Development and Innovation efforts on the one hand and technology transfer and knowledgebase utilization on the other. India is fast emerging as a major player in the Research, Development and Innovation arena globally. Open innovation is gaining increasing importance across a number of major industries. This increasingly making the country a prime choice among global companies for off-shoring their R&D and business needs. This scenario poses a challenge as well as an opportunity for CSIR & Indian Industries for mutual co-operation.

By participation industries have many advantages and benefit, following are the key takeaways

- Opportunity to directly interact with the innovators & high end service providers
- Many of the technologies have great market potential, which enable industries to think of expansion and/or entering new business areas.
- Availability of test facilities & high end services.
- Knowledgebase consultancy services for industries for sustained co-operation and development
- Furthering the Government's "Make in India" initiative

Programme

Inauguration 09.30 -10.00 AM	Welcome & Introduction Panel Discussion : Theme Directors Sharing Experience by Major ToT Partners Vote of Thanks
COFFEE/TEA BREAK (10.00 AM - 10.30 AM)	
Visit to Technology Exhibition (10.30 AM to 11.00 AM)	
Session -1 Presentation by Laboratories	
11:00 AM - 1.00 PM	CSIR-NAL CSIR-CEERI CSIR-CSIO CSIR-CMERI CSIR-CGCRI CSIR-IMMT CSIR-IIP CSIR-NML
LUNCH BREAK (01.00 PM - 01.30PM)	
Session-2 One-One Interactive Session with Industries	
1.30 PM - 05.00 PM	Hall - 1 : Aerospace Sector Hall - 2 : Electronics & Instrumentation Hall - 3 : Strategic Sector
Concluding Session 5.00 PM - 5.30 PM	Feedback & Summing-up

Registration for the Industry Meet

CSIR encourages online registration from industries. Maximum of two participation from industry is allowed. **There is no registration fee for the industry meet.** Prior registration is mandatory for participation.

Please log on to the following link for registration.
https://www.nal.res.in/industrymeet2019/index.html

For any queries contact

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