

Newsletter of IGSTC

Volume 2 | Issue 2 | May-Aug 2018



About IGSTC

IGSTC continues to support the Indo-German Research network through its programmes and schemes with a vigor and plays a pivotal role in facilitating the landscape of collaborative research supporting various Indian & German institutes and industry.

This period witnessed changes in the Governing Body of IGSTC. Mr Sanjeev Kumar Varshney has taken over as the new Indian Co-Chair of IGSTC. Mr B Anand has taken the charge of Financial Advisor, DST and as a member of the Governing Body. IGSTC welcomes the new Co-Chair and the Member to the IGSTC Governing Body. IGSTC also expresses its gratitude to the departing Co-Chair Dr Arabinda Mitra and Member Mr J.B. Mohapatra for their pivotal guidance to IGSTC for past several years.

The SC Meeting held during May 2018 recommended seven projects to be considered for funding under the flagship IGSTC 2+2 projects Call 2017 after a highly selective and rigorous evaluation process by Joint Scientific committee. The thematic area under this Call was on **Advanced Manufacturing and New Materials**. Further steps are being done to initiate these projects.

IGSTC entered into an agreement and signed a Letter of Intent with Alexander von Humboldt Foundation for supporting follow-up programme of Indo-German Frontiers of Engineering Symposia to encourage long-term research collaboration. A new programme with this effect namely "IGSTC-CONNECT Plus" will be launched soon to support this cause.

New research programmes as well as upcoming calls of existing schemes will be launched in the coming months to further strengthen the collaboration between India and Germany.

Editorial Team

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New Indian Co-Chair



Mr Sanjeev Kumar Varshney

Adviser & Head, International
Bilateral Cooperation Division
Department of Science & Technology

Mr Sanjeev Kumar Varshney has assumed the charge of Head, International Bilateral Cooperation Division (IBCD), Department of Science & Technology (DST) from 1st June onwards replacing Dr Arabinda Mitra. Subsequently, Mr Varshney being the Head of IBCD has taken over the role of IGSTC Indian Co-Chair. Mr Varshney has worked as Scientific Officer with Government of India in the Department of Science & Technology since 1990. He has worked as Counsellor (S&T) with Embassy of India in Moscow to facilitate bilateral scientific cooperation between India and Russia during April 2008 – June 2011. He has developed policy documentation to promote international scientific cooperation as well as scientific – industrial cooperation. He is also Involved in financial planning of the group, including preparation of documents and creation of mechanisms for support.

Spotlight: MIDARDI Project

Project Title

MIDARDI: Microfluidic based detection of microbial communities and antibiotic responses in the management of diabetic foot ulcers

Project Investigators



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Manipal University
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Project Summary

Europe and India face an epidemic of obesity and Type 2 diabetes (T2D). Development of T2D strongly correlate and very often predisposes to increased risk of many disabling chronic diseases including Lower Extremity Amputations (LEA) such as foot infections. Bacterial communities in such foot infections show diverse morphological and physiological characteristics and their bioburden in diabetic foot ulcers (DFU) show a distinct pattern of antibiotic resistance which significantly delays wound healing. Though infected ulcers require proper antibiotic therapy, rapid and accurate detection of polymicrobial communities in wound environment is critical in proper wound management. In this polymicrobial setting, the project aims at developing a microfluidics-based lab on-a-chip for rapid and accurate detection of different types of bacteria, their virulence/fitness factors and antibiotic resistant genes that may contribute to dominance of certain types in DFU settings. The detection module would aid clinicians in decision-making process to improve specific outcomes that would concomitantly improve wound healing per se in DFU scenario.

- Assay development for species identification and antibiotic resistance testing based on gene and mutation detection
- Fully-integrated, disposable Lab-on-a-Chip System to perform DNA sequence detection assays
- Readout unit dedicated to local environment to demonstrate species and drug resistance testing of pathogenic bacteria
- Proof-of-concept of mutation detection for translation

After clearance by the ethics committee Diabetic foot ulcer samples were collected from patients at Kasturba Hospital, Manipal following strict inclusion and exclusion criteria. For each patient, a minimum of two swab samples were collected for microbiological and culture independent (16S rRNA gene sequencing) processing. Collected specimens were brought to the microbiology laboratory at the School of Life Sciences, Manipal. Both culture-based and next generation sequencing (NGS) based technologies were carried out to understand the identity and differences in microbiome.

Microfluidic cartridges with pumping and heating capabilities to run all required process steps were

developed together with the required instrument and biochemistry. The figure below shows a hybridization cartridge, illustrated by thermochromic liquid filled in the reservoirs. A blue-colored liquid is pumped through the sensor region, where it bleaches due to the elevated temperature in that area. Such cartridges have been used with a newly developed microarray containing probes for selectively binding nucleic acid strands from bacteria. Various positions on the microarray can detect so-called SNPs (single nucleotide polymorphisms), which can be used

either to discriminate between bacteria of the same family, or to determine their antibiotic resistance profile. The bottom right picture shows the result of such a hybridization assay on the microfluidic cartridge (false-color fluorescence image and normalized quantitative results).

Next steps to complete will be the validation of the instrument and the newly-designed cartridge both as standalone sub-systems and together. Cartridges and instrument will then be prepared for tests with real samples during the last phase of the project.

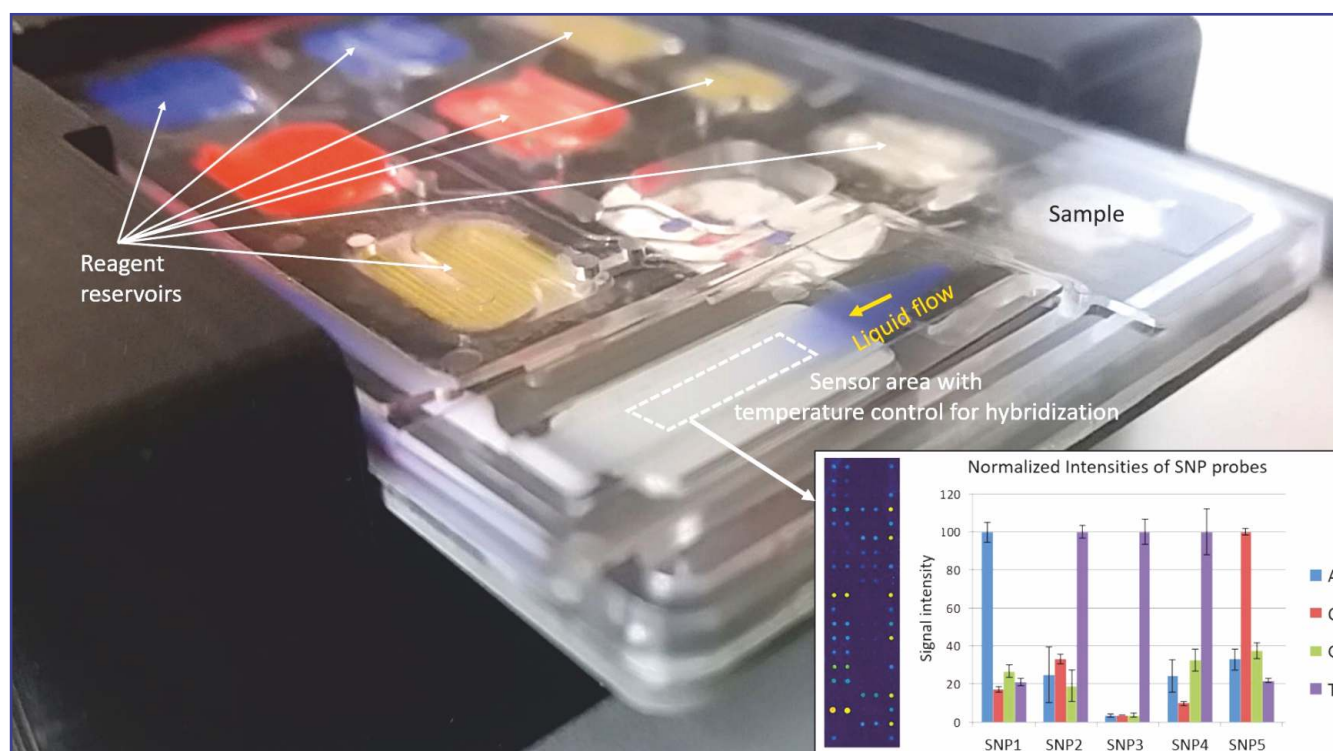


Fig: Microfluidic cartridge to run hybridization assay, and results of hybridization assay on a microarray (fluorescence detection)

Publications

- ▶ Kavitha S, Spoorthi J, Deepika VB, Raviraj A, Ramachandra L, Satyamoorthy K, Murali TS. 2017, Virulence determinants in clinical *Staphylococcus aureus* from monomicrobial and polymicrobial infections of diabetic foot ulcers, *Journal of Medical Microbiology*, 65, 1392-1404. DOI:10.1099/jmm.0.000370
- ▶ K. Shettigar, D. V. Bhat, K. Satyamoorthy, T.S. Murali. 2018, Severity of drug resistance and co-existence of *Enterococcus faecalis* in diabetic foot ulcer infections, *Folia Microbiol.*, 63, 115-122. DOI: 10.1007/s12223-017-0547-2
- ▶ Streit Petra, Nestler Joerg, Shaporin Alexey, Graunitz Jenny, Otto Thomas: Design methodology and results evaluation of a heating functionality in modular lab-on-chip systems. *J. Micromech. Microeng.* 28 (2018). DOI: 10.1088/1361-6439/aab0ca

RESERVES – Project Monitoring Meeting

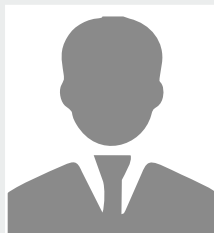
Project Title

RESERVES - Resource and energy reliability by co-digestion of veg-market and slaughterhouse waste

Project Consortium:



S V Srinivasan
CSIR-CLRI
Chennai



Santosh Kumar
Ramky Enviro Engineers
Chennai



Dirk Weichgrebe
Leibniz Universität
Hannover



Thilo Lehmann
Lehmann GmbH
Pöhl

The Meeting of the Project Monitoring Committee to review the progress of the IGSTC project Resource and energy reliability by co-digestion of veg-market and slaughterhouse waste (RESERVES) under the Call 2012 was held on 27th July 2018 at CSIR-CLRI, Chennai. The Monitoring was chaired by Prof Arvind Lali, ICT Mumbai. Director and the Sr. Scientific Officer attended the meeting.

The project aims to demonstrate the feasibility of sustainable resource and energy reliability by co-digestion of veg-market and slaughterhouse waste in India and its potential for global realization. An easily accessible alternative to energy imports and nuclear power is the abundantly available waste biomass to produce biogas through anaerobic digestion (AD). Mass flows of waste generated from slaughterhouse, fruit- and veg-market waste are rarely utilized for recovery of energy and nutrients. Biogas from this waste material could be an important and flexible energy source for local consumer with high supply guarantee. In most towns/cities of developing countries including India, slaughter house wastes are disposed along with other municipal solid wastes (MSW) in open dumping leading to contamination of air, water and land. However, with respect to resources and energy reliability, these wastes are highly valuable and regular/reliable sources of bio-energy. Treatment of slaughter waste alone for bio-energy generation in anaerobic processes is not effective in terms of optimum utilisation and performance of treatment

system. Animal wastes contain more of proteineous matter with high amount of nitrogen content and hence these wastes have low Carbon to Nitrogen (C/N) ratio. It is advantageous to add other organic wastes available in the Chennai city, like vegetable market waste, food wastes, agro-residues, industrial organic waste etc. for co-digestion process to enhance the biogas production in anaerobic treatment process, and to improve the performance of the biomethanisation system and overall sustainability. In co-fermentation of organic waste, the German and Indian industries/institutes have complemented experiences on sustainable anaerobic technologies for recovery of renewable energy in the form of biogas. RESERVES project proposes to investigate various combinations by co-digestion of wastes from slaughterhouses, vegetable market etc. in laboratory scale reactors and suitable combination will be studied in pilot-plant for biogas production and pre-treatment like bio-extrusion.

The Indian institutional and industrial partners presented the progress of the project for the last 24 months before the Monitoring Committee. The Committee reviewed the progress and was satisfied with the progress of the project and appreciated the outcomes & deliverables achieved in the project. Currently, the team is in the process of building and installing a pilot biogas plant at CLRI based on the design and process developed during the project duration.



Director, IGSTC and Sr. Scientific Officer, IGSTC also had a meeting Dr B. Chandrasekaran, Director, CSIR-CLRI. Discussions were on Indo-German collaboration and various programmes of IGSTC.

IGSTC team also made a visit to CSIR-SERC, Chennai. CSIR-SERC was a partner in the completed project NDT DATA FUSION. Dr P Srinivasan, Project PI

gave a brief overview on the progress achieved in the project and the lab developed under the project. IGSTC team also met Prof Santosh Kapuria, Director, CSIR-SERC and held discussions on the completed project along with different facets of Indo-German collaboration possible through IGSTC.

Bio-CulnGe Project

Project Title

Bio-CulnGe: Biotechnology for the recovery germanium, indium and copper from industrial copper dust waste

Project Consortium:



T R Sreekrishnan
IIT Delhi



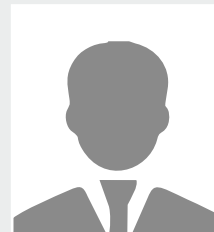
S K Ziauddin Ahammad
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Coimbatore



Katrin Pollmann
Helmholtz Zentrum
Dresden Rossendorf
Dresden



René Kermer
GEOS Ingenieurgesellschaft
mbH, Halsbrücke

Project Bio-CulnGe: Biotechnology for the recovery germanium, indium and copper from industrial copper dust waste under 2+2 Call 2016 is partnered by T R Sreekrishnan, S K Ziauddin Ahammad (IIT Delhi) ; G Venkat Saravanam (Laksmi Life Sciences) from Indian side and Katrin Pollmann (Helmholtz Zentrum Dresden Rossendorf) ; René Kermer (GEOS Ingenieurgesellschaft mbH) from German side.

Germanium (Ge) and Indium (In) are important elements for high-tech industry and their future supply is not assured. Copper (Cu) dust waste from smelters hold Ge and In, however, there is no technology for their recovery from these dusts. Further, the large volume of the produced Cu dust waste is challenge for Cu smelters. This project

proposes to develop environmental friendly and commercially viable technology for the recovery of In and Ge while decreasing the volume of Cu dust waste. The project encompasses preferential (bio) leaching of Ge and In from Cu smelter dust waste by optimizing various parameters followed by selective sorption. This project will apply the highly selective and sensitive siderophore and peptide based biosorptive biocomposites to recover In^{3+} , and Ge^{4+} from the leachate. This approach will also be applied to the waste from Cu metal powder and mould manufacturing for recovery of Cu. The project, for the first time, will attempt bioflotation for recovery of Cu mineral from Cu smelter dust with the help of biosorptive biocomposites.



Left to right: Dr Katrin Pollmann (HZDR), Dr Sabine Matys (HZDR), Ms. Priyanka Dubey (IIT Delhi), Dr S K Ziauddin Ahammad (IIT Delhi), Dr Rohan Jain (HZDR), Mr Venkat Sarvanan (LLS) at Vedanta Hindustan Zinc Limited, Chittorgarh

A Kick-off meeting was held at IIT Delhi on 12th July 2018 which involved the discussion regarding the project such as project web page development, list of facilities available at IIT Delhi and HZDR Germany, sample track record, skype meetings as well as yearly reports submission. The meeting was attended by respective faculty members of IIT Delhi, scientists from HZDR Germany, industrial partner from LLS and few other industrial delegates from Orion Metal Powder, India Trade Link Private Limited, Indian Copper Complex.

Preliminary studies on Copper dust samples collected from various sites in India are being carried out at HZDR, Dresden. Samples from LLS has been sent to HZDR for analysis. A visit to Khetri Copper Complex, Rajasthan on 13th July 2018 for the collection of samples was made and the samples were sent to HZDR for mineral analysis.

There was also a visit and meeting at Vedanta Hindustan Zinc Limited, Chittorgarh on 16th July 2018. The meeting was attended by delegates from IIT Delhi, HZDR and LLS.

IDC-Water Project

Project Title

IDC-Water: Integrated diagnostics of contaminants in water supply and management system

Project Consortium



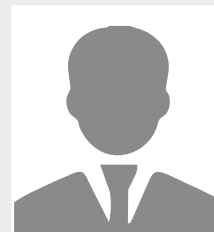
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J Manjula
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Bangalore



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Berlin

The project "Integrated diagnostics of contaminants in water supply and management system (IDC-Water)" was approved for implementation under the Call 2016 in the overall thematic area of Smart Cities. Project aims to develop a system for monitoring water quality in terms of specific bacterial cell/DNA and pharmaceutical residues.

In India water related diseases accounts for around 80% of the deaths. The most common and wide spread health risk associated with drinking water is its microbial contamination. The organisms which cause the water contamination are many out of which E coli, Salmonella, Shigella and Rotavirus are being targeted in this project for their detection. The Indian partner teams at IISc and Bigtec Lab are jointly developing a prototype of an on-line monitoring

system to be installed in the water supply network and through portable PCR system to be deployed in water quality testing labs along with software framework for data analysis. Bigtec's portable and point of care micro-PCR platform can give sample to result in 60 minutes. PCR process standardization is in progress for the target pathogenic strains. IISc is developing water sample processing cartridge for target specific cell culture (Fig. 1) and downstream extraction and DNA detection on microfluidic chip which will be used along with PCR technology (Fig. 2). The German partner teams at BAM Berlin and Sifin are jointly developing an immunoassay for detection of harmful pharmaceutical residues in the drinking water. This assay will be ultimately integrated in the on-line monitoring system.

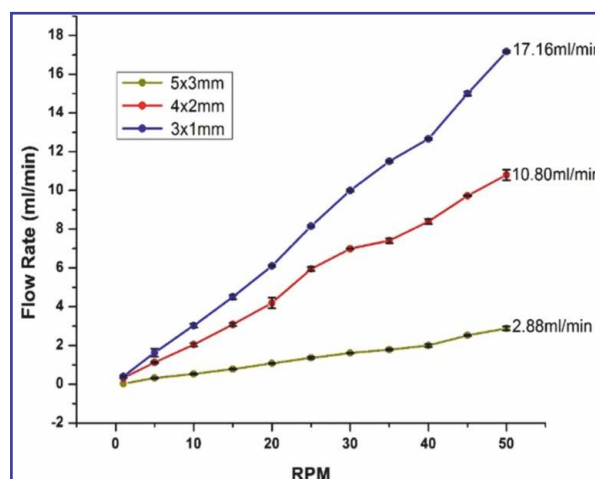
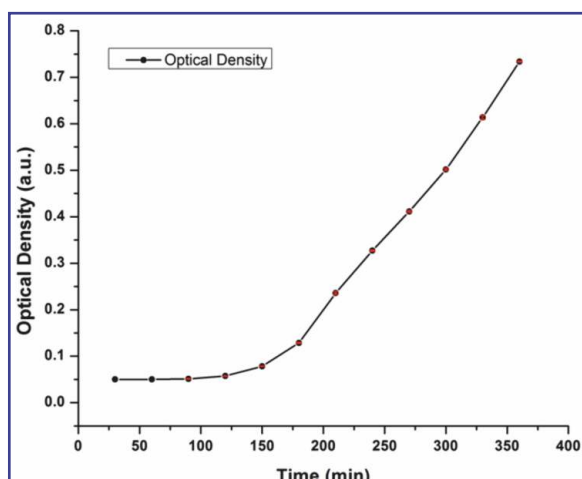


Figure 1 (a) E Coli cell counts being monitored during culture at controlled temperature of 37°C, pH 7.0 for water sample batch processing to be used in the integrated device (c) quantitative evaluation results of water sample flow control into the fluid handling cartridge.

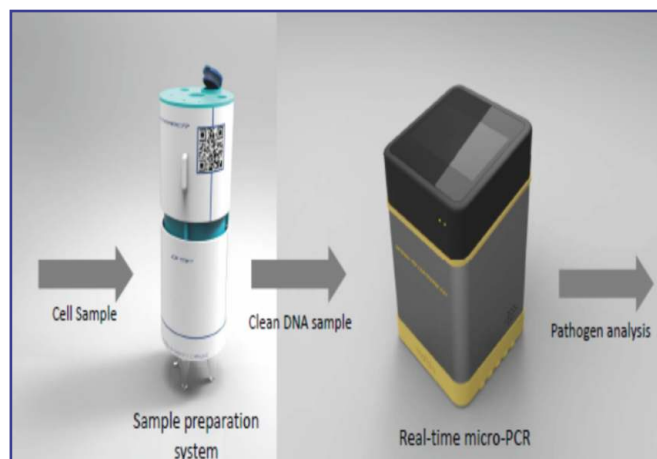
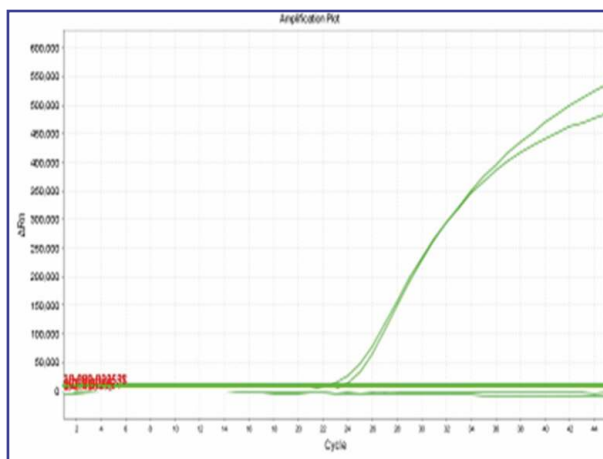


Figure 2 (a) PCR based detection of shigella using primers and probes which have been designed and standardized using commercial ABI 7500 PCR machine. (b) Integrated PCR device under development for water quality testing.

The project kick-off meeting with all partners took place in Bangalore during 12-13 June 2018. Discussions focussed on project deliverables and work-plan. Meeting was followed by a visit of the German partners to Bigtec's manufacturing plant at

Goa. Currently the project team is finalizing the detailed product requirement specification besides evaluating various technology components to be used in the design and development of the product prototype.



IDC-Water project team members at the kick-off meeting held at IISc Bangalore

ECO-WET Project

Project Title

ECO-WET: Efficient coupling of water and energy technologies for smart sustainable cities

Project Consortium



Naran Pindoriya
IIT Gandhinagar



Srinivas Singh
MMM University of
Technology Gorakhpur



Mr ArvindKumar Rajput
GIFTCL
Gandhinagar



Markus Duchon
fortiss GmbH
Munich



Daniel Ackermann
Sonnen GmbH
Wildpoldsried

The project "Efficient coupling of water and energy technologies for smart sustainable cities (ECO-WET)" was approved for implementation under the Call 2016 in the overall thematic area of Smart Cities.

Smart cities are envisioned to efficiently use two most critical resources: water and energy. Advanced techniques are being developed to conserve water. Similarly, renewable energy resources and smart devices are being implemented to meet the increasing electricity demand of the large population.

In reality, water management and energy efficiency are complementary to each other. On one hand, electricity from the renewable sources can be used to run water pumps or other components of the water treatment. On the other hand, during the oversupply of electricity from the renewable sources, e.g. water pumps can be made operational to create a balance of energy demand-supply in the electrical distribution network.

Coupling of cross commodity infrastructure and integration of energy storage is a challenge for smart cities. With respect to ICT this project addresses the challenge to bring intelligence closer to the device, which leads to distributed design. In such a system highly, integrated components from different sectors interact with each other to use available resources more efficiently and increase the overall performance.

This project envisions a smart city infrastructure with efficient water and energy distribution networks in a distributed manner. The water-energy Nexus with advanced energy storage and use of renewable energy resources has not yet been available. The project will implement a software platform with progressive optimization algorithms to interconnect different infrastructures and enable their real-time monitoring and control. Fostering the utilization of renewable energy sources advanced storage technologies will be deployed and integrated which allows for a modular and distributed operation of infrastructures

Project Consortium Kick-off meeting at Munich, Germany

ECO-WET team including Indian and German partners held the official kick-off meeting on 13th and 14th June 2018 at Munich, Germany. The project aims at strengthening Indo-German research and innovation in the field of smart grids and battery energy storage.

The uniqueness of this project is the energy efficient use of water and electricity by complementing both

critical resources (energy and water infrastructures) in the smart sustainable cities. The core scientific research is on enhancing the overall efficiency by coupling of these most essential infrastructures through smart grid technologies and intelligent computational framework.



ECO-WET consortium including Indian and German Partners

The outcome of the two full day meeting is use cases development, hardware-software requirement elicitation and work group creation to

carry out tasks till the next face to face meeting. Progress and milestones achieved were also reviewed.

Call 2017 – Scientific Committee Meeting

The Joint Scientific Committee Meeting comprising of Indian & German experts met in Bonn, Germany on 28-29 May 2018 for reviewing the stage 2 proposals shortlisted from the 1st stage under Call 2017. The Committee reviewed and scrutinized the proposals. The following seven projects were finally recommended by the committee and sanctioned by the two ministries:

Project Title

CleanWater: Modular lightweight wastewater treatment units made with TRC for rural and periurban dwellings

PPAM: Metal powder production for additive manufacturing

Steel4LTC: High strength spring steels with reduced low temperature creep for light weight designs

LABELONIK: Roll-to-roll printed electronic labels for temperature, humidity and tampering detections

SELBA: Advanced lithium ion transporting solid electrolytes for solid-state lithium batteries

NearNetMAC: Design and development of near-net-shape manufacturing process for light weight high strength aluminium composite and engineering components by squeeze infiltration technique for automotive and aerospace applications

TransLearn: Robot skill transfer from simulation to real world deployment in manufacturing industries and warehouses

Project Consortium

IIT Madras; CSIR-SERC
Raina Industries Ltd.
RWTH Aachen University
Mageco Ocean GmbH

IISc Bangalore; IIT Kharagpur
Tata Steel Ltd.
TU Darmstadt
SMS group GmbH

University of Hyderabad
JSW Steels Salem Works
Universität Siegen
Muhr und Bender KG

IISER Kolkata
Holographic Security Marking Systems
TU Dresden
Saralon GmbH

CSIR-CECRI; IISc Bangalore
Amara Raja Batteries
Karlsruhe Institute of Technology
Daimler AG

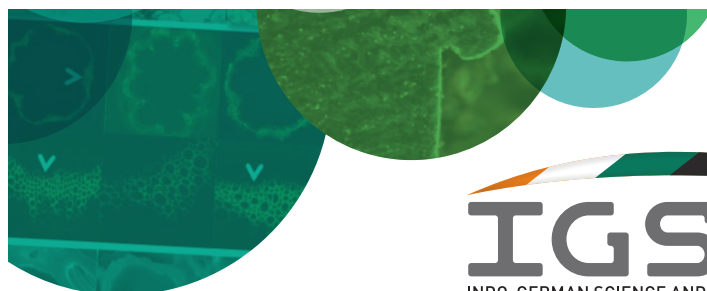
CSIR-NIIST Thiruvananthapuram
Fenfe Metallurgicals
ITA RWTH Aachen
CIKONI GmbH

IIT Kanpur
TCS
Karlsruhe Institute of Technology
KUKA



Joint Scientific Committee comprising of Indian and German experts

Open Call for Workshop



INDO-GERMAN BILATERAL WORKSHOPS IGSTC OPEN CALL

Indo-German Science & Technology Centre invites proposals for organising Indo-German workshops on areas of mutual interest with an aim towards creating platforms for substantive interactions between scientists / researchers from academia and industry. The workshops have to take place in India or in Germany and to be designed around a specific research topic out of thematic areas relevant to both DST and BMBF (preferably those under thematic areas of past and upcoming 2+2 Calls as mentioned at www.igstc.org) with a potential for generating follow up activities including joint projects. Training workshops do not fall under the scope of this call.

Who can Apply?

Persons holding regular positions in public or private non-profit research organisations, institutions of higher education and universities are eligible to submit applications.

Type and Extent of Support

- Event costs for typically not more than 25-30 participants (organisational and logistics expenses, catering, printing and publicity, miscellaneous expenses).
- International and domestic airfare for participants including transfer to the airport / venue and return. Only those participants with an active role (oral presentation) will be funded.
- Accommodation (expenses for accommodation in a standard hotel / guest house on actual costs for normally not more than four days).
- One official dinner.

CONDITIONS

- It is expected that the organisers also contribute to the event. In kind contributions – e.g. venue, personnel – are creditable.
- Event should be held at the organiser's premises and this cost is not covered.
- IGSTC will not pay any daily allowance nor cover any personnel costs.
- IGSTC will not give any travel support to researchers who are not based in India or Germany.
- Participation of industry is expected.
- A detailed draft program including a list of the expected participants has to be submitted along with a brief background document illustrating the importance of the workshop.
- Involvement of young scientists is highly recommended. Travel support will be provided to scientists who are pursuing at least their Ph.D., but access to the workshop for younger scientists working in the locality of the venue should be possible.
- It is expected that the workshop participants belong to various institutions.
- The utilisation of IGSTC format is mandatory for the application.

DST 47th Foundation Day

Department of Science & Technology (DST) celebrated its 47th Foundation day on 3rd May 2018. DST was founded on 3rd May 1971 with the express objective of exploring and developing new areas of S & T, to strengthen national Science & Technology capacity and capability, cutting across institutions and disciplines.

Union Minister for Science & Technology and Earth Sciences Dr Harsh Vardhan laid the foundation stone of new state of art building of DST. "Construction of new state of the art building should be completed by 3rd May 2021 when DST will celebrate its Golden

Jubilee", said Dr Harsh Vardhan. He also expressed his happiness as environment Minister as new building follows all green building norms and he insisted that latest norms should be followed during construction. Giving brief introduction about new state of the art building, Secretary DST Prof Ashutosh Sharma said that IRCON has promised to complete the phase one of project within 15 months. Prof Sharma appealed to audience to share any ideas that can bring unique science & technology elements in the new building.



Photo Courtesy & Copyright – Department of Science & Technology

Among other dignitaries present on the occasion were CSIR Secretary Dr Girish Sahni, Ministry of Earth Sciences Secretary Dr M. Rajeevan, IRCON CMD S. K. Chaudhary, DST joint secretary & Financial adviser J. B. Mohapatra, DST joint secretary Ms Anju Bhalla, former DST Secretaries Dr P. Ramarao & Prof V. S. Ramamurthy. Director, IGSTC also participated in the event.

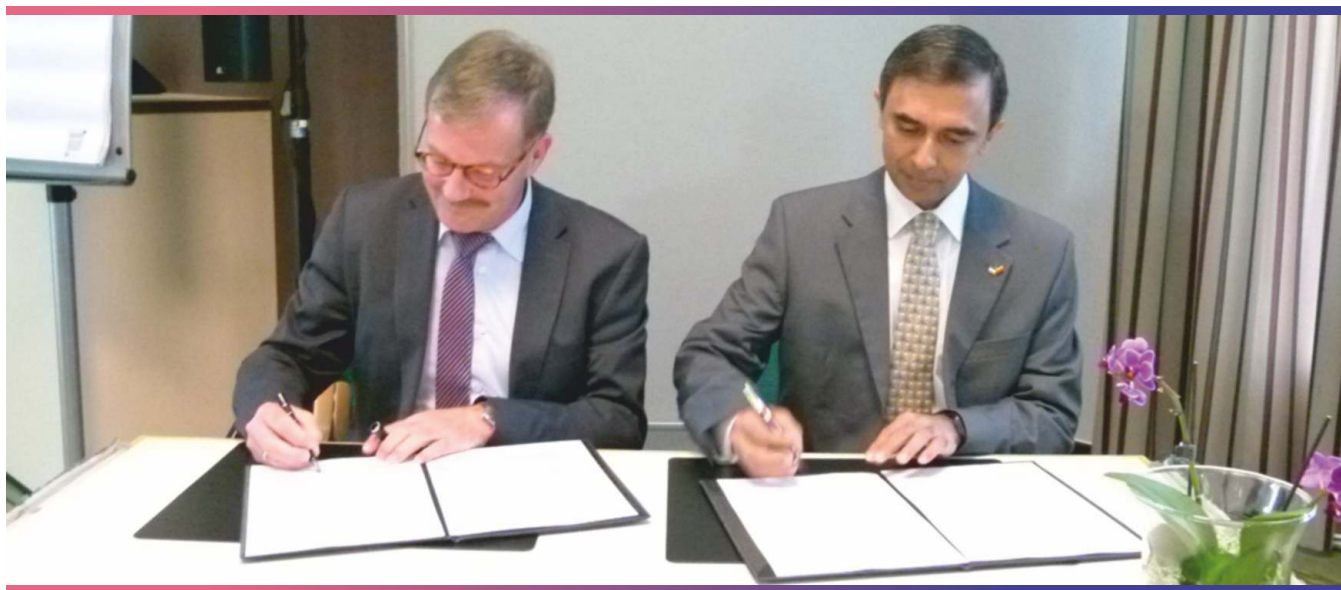
IGSTC-CONNECT Plus Programme

Indo-German Science & Technology Centre and Alexander von Humboldt Foundation (AvH) signed a Letter of Intent (LoI) for the implementation of IGSTC-CONNECT Plus on 25th May 2018. LoI was executed and signed by Dr Roshan Paul, Director, IGSTC and Dr Thomas Hesse, Deputy Secretary General, Alexander von Humboldt Foundation.

AvH and DST organizes Indo-German Frontiers of Engineering Symposia (INDOGFOE) which are a series of interdisciplinary, binational conferences. Funding on the German side is provided by the Federal Ministry of Education and Research. The activity brings together outstanding, early-career German and Indian engineers and natural scientists from industries, universities, and other research institutions to introduce their areas of research and technical work, thereby facilitating an interdisciplinary

transfer of knowledge and methodology that aims to lead to the development of cooperative networks of young scientists from both countries.

To encourage long term collaboration among participants of INDOGFOE, the AvH Follow-up Programme CONNECT allocates residence allowances for working visits of participants in INDOGFOE partner countries for up to a total of 30 days per conference. To further support working visits for successful CONNECT applicants from India and Germany, this LoI designates and appoints IGSTC to implement, administer and manage the IGSTC-CONNECT Plus Programme. Under this programme, IGSTC will support international travel expenses for successful Indian and German CONNECT participants, thus promoting the scientific exchange and networking.



IGCC Founder's Day

On 23 May, 2018, the Indo-German Chamber of Commerce (IGCC) Founders' Day Lecture was held at the Ballroom of the Taj Mahal Palace Hotel, in Mumbai. Director, IGSTC was a panelist on the topic "German Research & Development Setup" to highlight how Germany's R & D ecosystem is integral to its innovation and the resulting economic success. The other panelists were Dr Matthias Kiesselbach,

Director, German Research Foundation (DFG Office India) and Dr Dietmar Hueglin, Director Innovation Campus Mumbai, and the Vice President Advanced Materials & Systems Research, BASF Chemicals India Pvt. Ltd. Discussions were moderated by Ms Anandi Iyer, Head of the Fraunhofer Gesellschaft, India Office. Director, IGSTC discussed the role of IGSTC in the context of bilateral collaborative

research programmes carried out under the aegis of IGSTC. He also highlighted the success stories of different projects supported by IGSTC.

IGSTC Participation at IGCC Meet

IGSTC participated in the Annual General meeting of Indo-German Chamber of Commerce (IGCC) with an information booth display. The meet was held on 5th June 2018 at the headquarter of TÜV Rheinland in Cologne. Dr Martin Goller, Head, German Project Office and Director, IGSTC participated in the event. The booth displayed various programmes, schemes

A full house, with around 200 attendees, the event was graced by dignitaries and representatives from the German Embassy, German Consulate General, Indo-German companies, associations, academic institutions, as well as members of the IGCC.

and project related activities of IGSTC. Dignitaries including Ms Mukta Tomar, Indian Ambassador to Germany visited the booth. Several other participants including IGCC delegation, Indian and German bureaucrats, policy decision makers enquired about different activities of IGSTC.



Ms Mukta Tomar, Indian Ambassador to Germany at IGSTC booth

Golden Jubilee Visiting Fellowship Endowment Lecture

Director, IGSTC delivered a talk on "Indo-German Research and Networking Opportunities" on 30th August 2018 at Institute of Chemical Technology, Mumbai under the aegis of "Golden Jubilee Visiting Fellowship Endowment". Director gave a presentation on the activities of IGSTC programmes and schemes to the audience. He also highlighted the importance of Indo-German collaboration in various

fields of science like advanced manufacturing, bio-medical sciences, etc. The session was chaired by Prof P. V. Devarajan, Pharmaceutical Sciences and Technology, ICT, Mumbai. The session was attended by various faculty members, research personnel of ICT and industry representatives followed by a lively Q&A session.



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