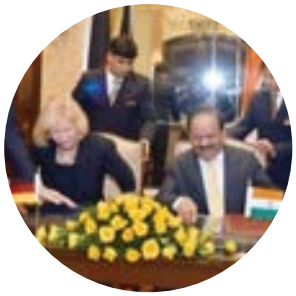
IGSTC
INDO-GERMAN SCIENCE AND TECHNOLOGY CENTRE

DST@ 1971-2021 DEPARTMENT OF SCIENCE & TECHNOLOGY

A Joint Initiative by DST, India and BMBF, Germany since 2010

Federal Ministry of Education and Research

MORE THAN A DECADE OF SUCCESSFUL BILATERAL APPLIED RESEARCH AND NETWORKING



2015: Decision to extend tenure with enhanced funding at the Inter-Governmental Consultations

2017: Review of ongoing S&T cooperation and recommendation of new activities at the Joint Committee Meeting

AREAS ADDRESSED

- Bioeconomy
- Smart Cities
- New Materials
- Waste to Wealth
- Embedded System
- Medical Technology
- Waste Management
- Additive Manufacturing
- Advance Manufacturing
- Sustainable Production
- Sustainable Packaging
- Sustainable Energy / Environment
- Water & Wastewater Technology
- Information & Communication Technology

ACHIEVEMENTS

2+2 Projects

44
Projects Partnering Research Institutions, Academia & Industries

≈190
Research Institutions, Academia & Industries Associated

Capacity building of
≈150
Young Engineers, Science Graduates and Technologists

132
Joint Scientific Publications

2 Technologies Commercialized,
7 Technologies Developed

Workshops, Mobility, CONNECT Plus

27
Workshops Supported

Connected
2700
Scientists and Industry Personnel

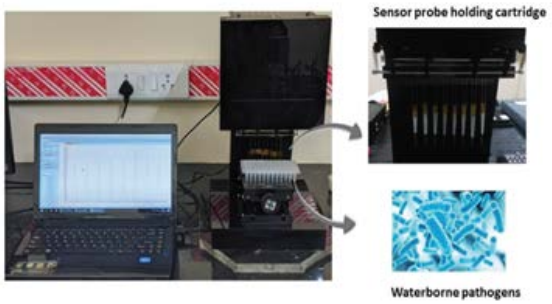
54
Institutions in India & Germany Networked

Exposure to approx.
1000
Early Career Researchers

22
Mobility Grants

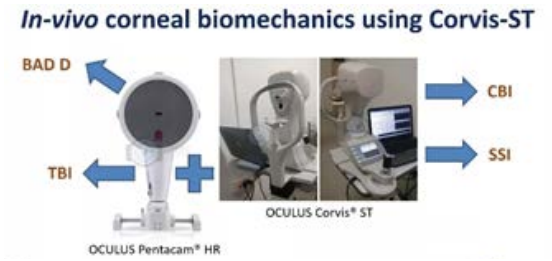
15
Partner Groups Between Max Planck & Indian Institutes

TECHNOLOGIES COMMERCIALISED



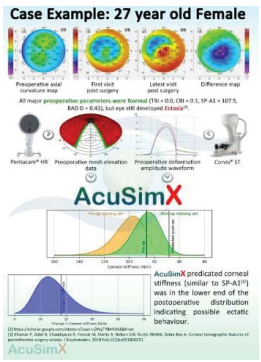
Fiberoptic Array Biosensor: A compact array biosensor with 8 probes for simultaneous detection of up to 7 different pathogens of interest.

Project Team: IIT Madras, ubio Biotechnology Systems, ChemBioSens, TU Braunschweig, Lionex



World's first advanced biomechanical simulation software of patient corneas for predicting biomechanical outcomes after refractive surgery and ectasia risk estimation.

Project Team: NNF, VIT, Forus, Univ. of Carl Gustav Garus, Oculus Optikgeräte.



STARTUPS

Multi-WAP project resulted in the creation of a start-up company ChemBioSens at IIT Madras Research Park.

ChemBioSens

FLEXIPRIDE project resulted in a spin-off company Saralon.

saralon
SIMPLIFYING ELECTRONICS

5 Patents Granted

- **WO2019/166886A1**
  A method to quantify the corneal parameters to improve biomechanical modeling.
- **WO2018/167696A1**
  A system and method of artificial intelligence and tomography imaging of human cornea.
- **WO2018/203196A1**
  A method to quantify the quality of corneal donor tissue for transplantation using tomography imaging.
- **WO2018/104802A1**
  A process for producing graphene, a graphene and a substrate thereof.
- **WO2017/098424A2**
  An index for quantification of Bowman's layer for diagnosis of disease and prognosis of treatments in human cornea.

PILOT PLANTS FOR WASTE TO WEALTH

Pilot Plant at CSIR-CLRI, Chennai for co-digestion of vegetable market waste and slaughterhouse waste using bioextruder as pre-treatment.This can be used as a demonstration model plant in the waste management of smart cities.

Project Team: CSIR-CLRI, Ramky, Leibniz Univ., Lehmann

Integrated Solar Dryer and Pyrolysis pilot plant at CSIR-CLRI, Chennai to convert urban organic waste into energy & biochar. Technology development efforts for the joint processing of Fibrous Organic Waste (FOW) and Sewage Sludge (SS) of Indian smart cities into hygienic and highly valuable biochar.

Project Team: CSIR-CLRI, Ramky, Leibniz Univ., Biomacon

TECHNOLOGIES DEVELOPED

Biotechnology approaches to improve chickpea productivity

The complete genome sequence of chickpea (Cicer arietinum) carried out for the first time to provide a resource for trait improvement. Published in Nature Biotechnology 2012

Project Team: ICRISAT, BenchBio, Univ. of Franfurt, GenXPro

Laser thermography: On-line monitoring of casting processes

An improved Non-Destructive examination measurement methodology capable of providing measurements of the state of the process and the product, under hostile manufacturing conditions, that would otherwise be impossible.

Project Team: IIT Madras, Dhvani Research, BAM, InfraTec

Nanostructured hybrid transparent conducting electrodes (TCE)

Metal network TCE developed under METNETWORK project transformed to a demonstrator heated glove compartment lid by laminating a metal network TCE under the leather as heating film.

Project Team: CeNS, Tata Steel, Univ. of Bayreuth, Papierfabrik Louisenthal

Microfluidic based detection of microbial communities

A microfluidic based lab-on-a-chip for rapid (<1 hour) and accurate detection of different types of bacteria, their virulence/fitness factors and antibiotic resistant genes.

Project Team: Manipal Univ., Achira labs, Fraunhofer ENAS, Fraunhofer IZI, Biflow systems

NETWORKING WORKSHOPS

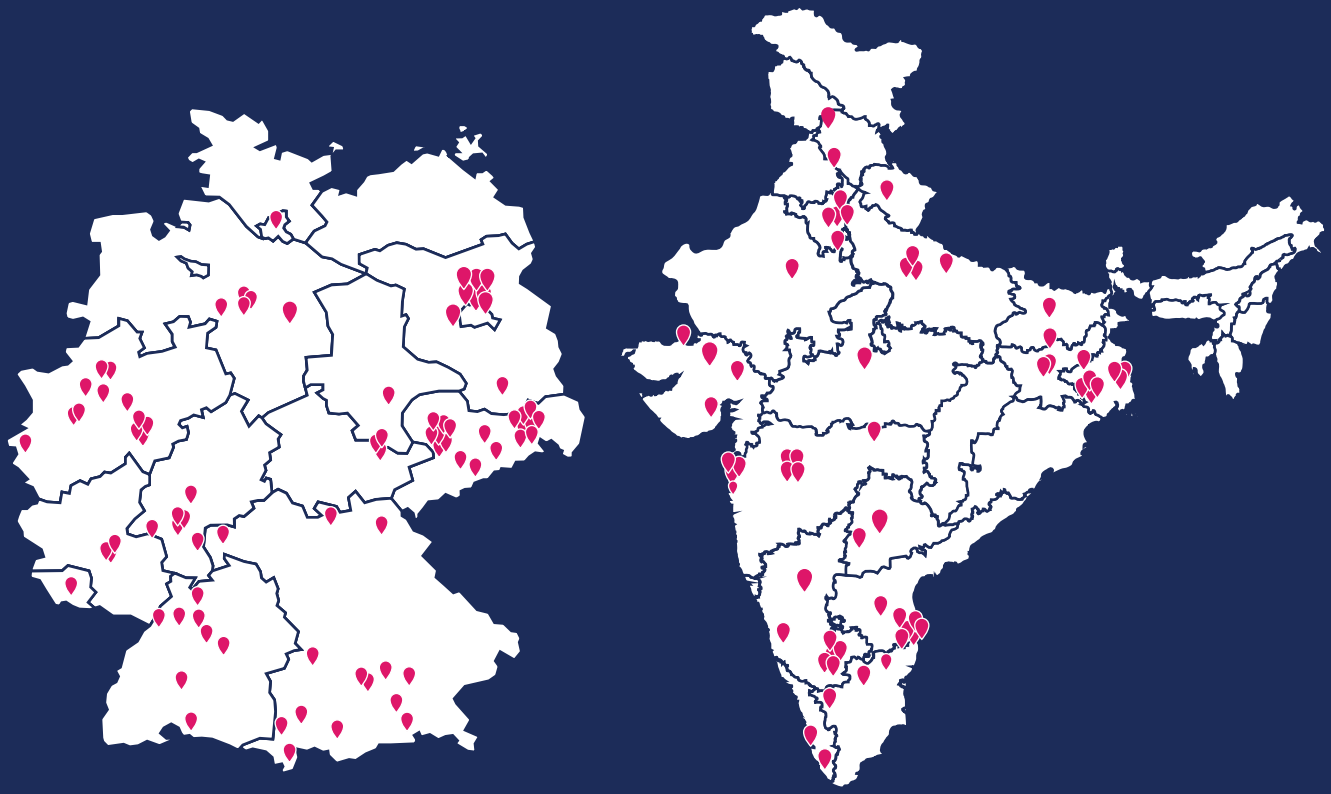
Workshop on intelligent mobility, 29-30 October 2018, Kharagpur (IIT Kgp and TUM)

Helmholtz-Indian platform on science, technology, education and research (HIPSTER) workshop, 13-14 February 2019, Bengaluru, India.

Workshop on research and innovation towards leapfrogging in frontier technologies, 29 July-1 August 2019, New Delhi (CSIR & Fraunhofer)

Indo-German symposium on Smart Cities: Challenges & Opportunities, 27-29 April 2016, Berlin

INDO-GERMAN NETWORK THROUGH IGSTC PROGRAMMES



Spread of institutions and industries across India & Germany

INSTITUTIONS AND INDUSTRIES ASSOCIATED WITH IGSTC PROGRAMMES