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Innovation | Technology | Business

FITT FORUM

Newsletter of Foundation for Innovation and Technology Transfer, Indian Institute of Technology Delhi, New Delhi

INSIDE

MESSAGE

Despite the Pandemic..

2020 was no ordinary year - one that challenged humanity in its face. The so-called 'new normal' came to be predicted as the new social order but there were strong pockets of resistance to the rogue virus. While a large number of frontline workers were out there braving the onslaught, quite a few in the background decided to contribute in the fight. Feverish researches got underway to understand the ways of the villain and suggest steps to ameliorate the pandemic effects. Interestingly the need-driven technological innovations just seemed to be waiting to come to the fore to address the challenges. Besides the healthcare and pharma sectors, the big gainers were the various video calling applications which made meetings and outreach with webinars that much easier. There has been a surge of activities in the virtual space. The emergence of the work-from-home paradigm focussed more on outcome rather than presence. In a leap of faith FITT started its regular office operations from May 2020. It was not just to show the physical presence but, to make a telling point that like the frontline workers, we too could work like normal (with safeguards) and with a vengeance to do better despite the viral outbreak. We filed the highest ever - 152 patents in the calendar year and closed 25 technology transfer deals. Our start-ups were egged on and supported to bring out timely solutions to cope with the pandemic. And, we kept engaging with partners. Some noteworthy collaborations instrumented by FITT, IIT Delhi during the later part of the year were - MoU with Gexcon and Nayara Energy for establishing a Center of Excellence in Process Safety & Risk Management, MoU with UN World Food Programme for establishing an Innovations and Operations Research Lab for Public Systems, MoU with Software Technology Parks of India for establishing a Center of Excellence in Blockchain Technology and MoU for development of EV Technologies and Advanced Research with Omega Seiki Mobility. To accommodate the increasing demand by various technology-based start-ups, we expanded our incubation facility - the Atal Incubation Center at ITEC Sonipat and Healthtech incubator at Chandrasekhar Bhawan, ITO, Delhi. Well the momentum has been built and we hope to see a surge with deeper industry collaborations and start-up activities at the Research and Innovation Park, IIT Delhi which is likely to be launched in Spring 2021. We look forward to increased participation of various stakeholders in the innovation journey spearheaded by FITT and, at the same time, we wish everyone a safe and smiling 2021.

Dr Anil Wali

RESEARCH TALES

Smart Textile Technologies as Safety and Protective Gears

Prof. B Kumar
TFE, IIT Delhi

Textiles have been integral part of human race since centuries. Though, they were initially thought to be used for covering, storage, ropes, fishing, etc. A textile material and their structures offers many unique characteristics such as flexibility, drape, breathability and strength, which is otherwise not easily achieved in other engineering materials and structures. Further, their surface could be functionalized to achieve novel properties. Their application domains have widened in multiple areas including medical, civil, defence, energy, transport, protection, etc.

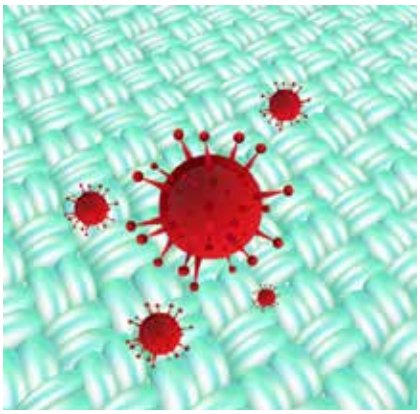
Textiles today can enhance the quality of human life through protection against various hazards as well as protections of environment. Protective textiles offer wide application areas, including the protection from cross-infection like COVID19, heat and fire protection, protection against biological agents, radiance shielding against UV rays, and military applications. Protective textiles are the fastest growing area of textile consumption in the world. As per the market survey it has projected an average growth rate of 6% for technical textiles. In most of the developed countries, Protective textile already account for 4% of the total textile production.

Protection from Radiation

Radiation is part of our daily life. Too much exposure of electromagnetic radiation affecting our cells, brain tumours, poor reaction times, and sleep disorders. The team has researched into metal based textiles and garments are designed for EMI/RF shielding from mobiles, laptops, Wi-Fi, computers, phone towers and all other wireless devices being used in present electronic world.

Antimicrobial Protection

Conventional garments possess the risk of human pathogens and cross-infection rates. In current pandemic, the most likely way for the virus to spread is through close contact with someone who's infected, and a textile surface acts as a carrier. They developed functional textiles with antiviral and antimicrobial properties that offers protection against bacteria, mold, mildew, viruses, and other hazardous microbe. The antimicrobial property of the garment remains effective even after 30 washes at mild condition.



Anxiety Protection

An estimated 275 million people suffer from anxiety disorders due to either by apprehension or tension to factors such as social media, poor sleep habits, lowered stigma, and underreporting in the past. The team has researched in unique electronic textile products that could improve the daily lives of individuals and families living with sensory and neurological disorder. Through smart compression pattern and acupressure technique, it will reduce anxiety, relieve stress, and improve circulation and sleeping.

Rape Protection

Rape is a greater societal problem that needs to be addressed on a more comprehensive scale and can serve as an incentive for every woman to address the issue of her own personal safety to prevent rape. The team has researched into smart e-textile based innovative solution give women an edge when it comes to personal safety. With only a tap, a user can trigger a loud alarm that will immediately notify friends and family of their current location.

Bedsore Protection

Pressure ulcer or sores can form when your skin and soft tissue press against a harder surface, such as a chair or bed, for a prolonged time. Lack of blood supply can cause the skin tissue in this area to become damaged or die. Engineering 3D textile structures and soft fibrous materials could ensure uniform pressure distribution around underlying tissues.

Dr. Kumar research group is working towards innovative engineering solutions for protection and healthcare. The team has incubated a smart textile start-up, ETEX Healthcare Private Limited (www.etex.in) in IIT Delhi. Being the first mover in the smart textile market in the country, ETEX aims to grab the opportunity of fulfilling the need of functional and advanced textile solutions to solve the real lifestyle issues related to protection. The team is supported with state of art facilities and technologies to achieve seamless integration of smart materials, electronics into textiles for delivering next generation wearable solutions.

The team has launched their first commercial product, KAWACH Mask, in May 2020 at the time urgency. The start-up ETEX has scaled up production to ensure that the mask reaches the masses to protect them against COVID-19. So far, over three million masks have been served to the country across all states. While doing so ETEX has created over 2000 jobs in the textile industry in the country at a time when there is a tough employment scenario due to the pandemic. The startup has organized several training sessions for garment houses for the quality mask development.

While not resting on the laurels of merely developing textile technology, they are on the next mission to introduce the historic and popular Indian brand "KAWACH" on the international forum.

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RESEARCH TALES

Study of erythroid and megakaryocyte Lineages under normal development and pathological myeloproliferation

Prof. A Roy
KSBS, IIT Delhi

The human blood contains various types of cells of which platelets and red blood cells (RBCs) are the most abundant. These cells have highly specialized functions. The red blood cells are designed to transport oxygen throughout our body and the platelets are entrusted with prevention of bleeding. To carry out these functions, the precursor cells of platelets and RBCs undergo unique developmental program. For example, platelets are extruded from the tips of a mature megakaryocyte while RBCs are produced after enucleation. These processes rely upon changes in the cytoskeleton structure of the precursor cells. In our lab, we study the effects of small Rho GTPases on actomyosin architecture. We are specifically interested in Rac-GTPases and their effects on the actomyosin at the cell cortex and cleavage furrow. These studies will help us understand the forces acting upon the precursor cells and may one day enable the large-scale bioreactor-based production of these cells.

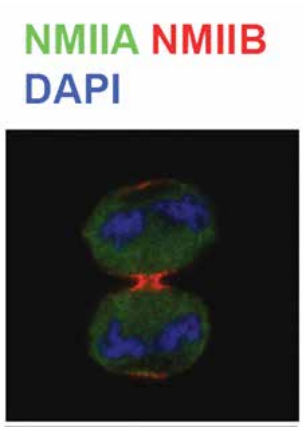

Figure: Representative image of a dividing megakaryocyte with non-muscle myosin IIA (in green) and non-muscle myosin IIb (in red) and DNA stained with DAPI (in blue).

Diseases such as leukemia that show a pronounced increase in the numbers of these cells offer rare insights into their developmental process. One such disease is myeloproliferative neoplasm that is driven by mutations in calreticulin. This disease is characterized by excessive platelets. Previously, we have established a link between different calreticulin mutations and aberrant thrombopoietin receptor signaling. In our lab, we are looking at thrombopoietin receptor independent effects of the various calreticulin mutations. The thrombopoietin receptor independent effects may explain the clinical differences observed in patients with different types of calreticulin mutations. It may also bring forth yet unknown pathways that promote platelet production.

FACULTY PROFILE

Prof. A Bagchi
CSE, IIT Delhi

Amitabha joined the department of Computer Science and Engineering at IIT Delhi as an Assistant Professor in 2005 having earlier taken his BTech from the same department in 1996. He got his PhD from Johns Hopkins University in 2002 in the area of algorithms and networks.

As a researcher, Amitabha strives to connect mathematical abstractions with concrete computing system systems. His research interests can be divided into two parts. On the computing side, his interest is in Algorithms and Data structures. On the mathematical side his interest is in Graph Theory and Probability. He has applied some combination of these four fields to application areas as diverse as Wireless Networks and Sensor Networks, Social and Complex Network Analysis, Information Retrieval, Databases, Data Mining and, more recently, Machine Learning. Amitabha's research has appeared in the prominent peer reviewed conferences and journal across the spectrum of Computer Science. His recent work applying Machine Learning to Data structures was given a best paper award at CODS COMAD 2020, a premier venue for data science and data management research in India.

As the mathematical tools applied to these application areas have become more demanding over the years, Amitabha has taught a number of advanced mathematical courses to help students in the department keep pace with the latest developments in the field. Over the last few years Amitabha has taught advanced courses on Spectral Graph Theory, Expander Graphs and their Applications, Rapid Mixing in Markov Chains and Matrix Concentration Inequalities. He also designed and taught an advanced course on Mathematics of Data Science in 2016.

As an undergraduate teacher Amitabha has generally handled early classes, i.e., those taken by students in the first two or three semesters because he feels that this is the most formative period of the undergraduate's tenure. Amitabha believes that it is the teacher's responsibility to justify to the students the value of what they are learning. As an instance of

how this philosophy is made concrete, Amitabha designed a set of Data Structures assignments that drew on technologies that the students encounter everyday. For example, he asked them to think about how a mobile telephony operator locates a phone, designing a toy scenario which captures the basics of the mobile location problem and creating a programming assignment around it. Similar assignments were designed around taxi-hailing services, the stock exchange and search engines. These assignments were greatly appreciated by the students. In an era where all information is easily accessible, Amitabha feels that undergraduate teaching must focus on building the students ability to think with and process that information. This clarity of vision has directed Amitabha's evolution as a teacher over the last decade and allowed him to adapt to changes in the ecosystem and use new technologies to handle new challenges.

In 2012, Amitabha received IIT Delhi's teaching award for his Data Structures class. His department also recognised the fact that he thinks hard and deep about pedagogical issues by making him its representative to the Board of Academic Programs. He was also entrusted with the responsibility of redesigning early UG teaching in view of the challenges that have come over the last few years with numbers increasing and the student intake undergoing qualitative changes.

Amitabha was one of the founder members of the Data Sciences group in the department of Computer Science and Engineering and has helped create one of the strongest groups in the country in this emerging and important area despite strong competition for faculty talent from other institutions. As part of outreach, Amitabha has worked on cutting-edge research projects with a variety of industry partners including Yahoo!, Swiggy and Nutanix among others. He has also served as a consultant on a number of patent infringement cases relating to algorithmic intellectual property in the mobile telephony domain. For further details on Amitabha's teaching and research, please visit http://www.cse.iitd.ac.in/~bagchi .

FITTFOOTPRINT

Some IPR applications filed during July-December 2020

S No	Title	PI	Dept/ Center
1	All steel short core Buckling- Restrained Braces (As-BRBs) with bolted angle restrainers	Prof. D R Sahoo	CE
2	FE-SMA core-based buckling-restrained braces	Prof. D R Sahoo	CE
3	SEAMS (Spine-Protection and Extrication Aided With Muscle Synergy)	Prof. Y Patel	AM
4	Ripstop weaves for enhanced tearing strength and breathability	Prof. D Gupta	TFE
5	System for rehabilitation of a limb of a patient	Prof. A Mehndiratte	CBME
6	Customizable and flexible force sensing resistor	Prof. A Chandra	CBME
7	Method of fabricating tubular scaffold	Prof. PM Pandey	ME
8	Synthesis of novel multifunctional disperse dyes based on natural couplers for imparting coloue, mosquito repellency, antibacterial activity and UV protection to textiles	Prof. JN Sheikh	TFE
9	Novel approach of In-Situ synthesis of mosquito repellent, anti bacterial polymeric dye on the cellulosic background	Prof. JN Sheikh	TFE
10	Geometrical model and fabric production method for energy absorbing woven structure with multiple structural variants	Prof. BK Behera	TFE
11	Flexible gel-less antibacterial electrodes, method for manufacturing same and system deploying said electrodes for cardiac monitoring	Prof. JP Singh	PHY
12	Flexible electrode for microbial fuel cell	Prof. SW Ali	TFE
13	Universal CBRN decontamination wipe	Prof. BS Butola	TFE
14	Portable decontamination device	Prof. BS Butola	TFE
15	Variable radius wheel based on compliant mechanism	Prof. JP Khataiat	ME
16	Plasmonic gas sensors	Prof. A Dhawan	EE
17	Broadband optical modulators	Prof. A Dhawan	EE
18	Trademark SPIDERLON	Prof. AK Agarwal	TFE

19	Tunable substrate integrated waveguide filters	Prof. SK Koul	CARE
20	Process for preparing selenium doped tungsten oxide material for fabricating as super capacitor material and electrode thereof	Prof. PP Ingole	CHY
21	A three-phase grid integrated multiple solar photovoltaic arrays battery based micro-grid	Prof. B Singh	EE
22	A method for semi-active vibration control of structures	Prof. V Matsagar	CE
23	Surge tank based system for automated operation and control of continuous biopharmaceutical manufacturing	Anurag Singh Rathore	CHEME
24	Environmental friendly metal-working fluid and process of preparation thereof	Prof. D Kumar	CART
25	Transglutaminase nanoflowers	Prof. SK Khare	CHY
26	Tension adjustment mechanism for tendon driven systems	Prof. JK Khatait	ME
27	Fibrous air filters with a gradient of fibre shape	Prof. D Das	TFE
28	Handrail Sanitization Device	Prof. H Singh	CBME
29	"An automated instrument and microfluidic chip for improved and rapid testing of nucleic acid"	Prof. SK Jha	CBME
30	Genetic tool for scheffersomyces stipitis	Prof. A Narang	DBEB
31	An ocular drug delivery device	Prof. D Kalyanasundaram	CBME
32	Biomedical device for irradiating visceral organ	Prof. H Singh	CBME
33	Conjugate comprising riboflavin base or salts thereof and a cell penetrating peptide, and applications thereof	Prof. A Chugh	KSBS
34	Remote centre of motion adjusting system and method of adjustment thereof for medical/surgical devices	Prof. JP Khataiat	ME
35	System and method for improving performance of semi-grant free uplink by intelligent power allocation and node selection mechanisms	Prof. S Prakriya	EE
36	Substrate for surface enhanced Raman spectroscopy	Prof. SK Dubey	SENSE
37	A cellular artificial skin substitute & method of preparation thereof	Prof. V Koul	CBME
38	Dynamic yarn pull-out testing device and method of testing thereof	Prof. A Majumdar	TFE
39	A system and method for production of single polymer towpreg through wet electrostatic powder coating	Prof. R Alagirusamy	TFE
40	Hybrid water pumping system	Prof. B Singh	EE
41	A nano-adsorbent for removal of lanthanide ions from water and associated methods	Prof. A Ganguli	CHY
42	A method and an apparatus for wireless information and energy transfer using distributed beamformin	Prof. S De	EE
43	Managing elecrical energy consumption	Prof. A Verma	CES
44	Fibre orientation gradient fibrous air filter	Prof. D Das	TFE
45	Axial flux motor for ceiling fan	Prof. B Singh	EE
46	Apparatus for filtration of particulate matter	Prof. D Das	TFE
47	Triple shield, portable, universal biological green decontamination station	Prof. BS Butola	TFE
48	Graph processing on spatial accelerators	Prof. M Suri	EE
49	A system and method for comparing Instruction Set Architectures (ISAS) for designing application specific instruction set processor	Prof. SR Sarangi	CSE

50	A control system for operating a three phase induction motor drive and a method for operating motor drive	Prof. B Singh	EE
51	Paper based thermostable, rapid antigen test cassette/card (SWAB SPECIMEN) for novel CORONAVIRUS-19 (SARS-COV-2)	Prof. H Singh	CBME
52	Optimizing paste formulation for an electrode and method thereof	Prof. AN Bhaskarwar	CHEME
53	Phase shifter using substrate integrated waveguide technology	Prof. SK Koul	CARE
54	System and method for primary control loop of a dual active bridge converter based on analog circuitry	Prof. B Singh	EE
55	Amino acid-functionalized chiral metal-organic frameworks for sustainable asymmetric earth-abundant metal catalysis	Prof. K Manna	CHY
56	A self-centering buckling-restrained brace system	Prof. DR Sahoo	CE
57	Multifunctional three-phase single stage solar PV-BES based micro grid with seamless transfer capability between utility grid and diesel generator	Prof. B Singh	EE
58	Aqua Siver (Class-1)	Prof. AK Agarwal	TFE
59	APPARATUS AND METHOD FOR NON-INVASIVE MEASUREMENT OF BLOOD GLUCOSE CONCENTRATION"	Prof. SK Koul	CARE
60	Microfluidic analyser for in-vitro bio-sensing and diagnostics	Prof. R Elangovan	DBED
61	A novel process for preparation of Pegylated Recombinant Human Granulocyte Colony Stimulating Factor (PEG-GCSF)	Prof. AS Rathore	CHEME
62	Reconfigurable diameter wheel	Prof. JP Khataiat	ME
63	Novel activation function with hardware realization for recurrent neuromorphic networks	Prof. M Suri	EE
64	Uni-condylar, bi-cruciate retaining knee implant	Prof. D Kalyanasundaram	CBME
65	Person identification and imposter detection using footfall generated seismic signals	Prof. S Kar	EE
66	A circuit possessing fault limiting capability in a hb-mmc based hvdc transmission system and a method thereof	Prof. A Das	EE
67	Low cost ergonomic 3D printed face shield	Prof. A Das	CBME
68	An Automatic Tool Changer (ATC) with a provision for supplying pressurized fluid with transmission of rotary power	Prof. S Jha	ME
69	A platform for manoeuverability of a vehicle on icy terrain	Prof. JP Khataiat	ME
70	Unequal halbach array assisted consequent pole ceiling fan permanent magnet brushless DC motor	Prof. B Singh	EE

Abbreviations

AM: Department of Applied Mechanics
BSTTM: Bharti School of Telecommunication Technology and Management
CARE: Centre for Applied Research in Electronics
CAS: Centre for Atmospheric Sciences
CART: Centre for Automotive Research and Tribology
CBME: Centre for Biomedical Engineering
CE: Department of Civil Engineering
CES: Centre for Energy Studies
CHEME: Department of Chemical Engineering
CHY: Department of Chemistry
CRDT: Centre for Rural Development and Technology
CSE: Department of Computer Science and Engineering
DBEB: Department of Biochemical Engineering and Biotechnology
DMS: Department of Management Studies
DMSE: Department of Material Science & Engineering
DOD: Department of Design
EE: Department of Electrical Engineering
HUSS: Department of Humanities and Social Sciences
KSBS: Kusuma School of Biological Sciences
MATHS: Department of Mathematics
ME: Department of Mechanical Engineering
PHY: Department of Physics
TFE: Department of Textile and Fiber Engineering
and many more...

TECHNOLOGYPROFILE

An Automatic Tool Changer (ATC) with a provision for supplying pressurized fluid with transmission of rotary power

Prof. S Jha - PI
Onkar Chawla, Tarun Verma
ME, IIT Delhi

An automatic tool changer (ATC) is a device, which is used for engaging and disengaging a variety of tools in the spindle of a CNC Milling machine. Commonly available tool changers for CNC Milling centers provide the facility of tool change in an easy and operator friendly fashion. The primary advantage of a tool changer is that the tool setup time is drastically reduced, and the machining operations are less prone to errors due to the decreased human intervention.

An ATC consists of two main components: the master and the slave. The master is connected to the spindle which provides the rotary motion while the slave has a provision for rigidly holding a cutting/machining tool. The slave components loaded with different tools are mounted in a tool magazine and the ATC disengages the previous tool and engages the next tool as per requirement. The fundamental feature in an ATC is that the engagement and disengagement of the slave must take place without human intervention. The engagement must be such that the slave must be firmly locked in the master so that it can transmit rotational power and not get unlocked during motion.

However, there are a few applications which require a supply of pressurized fluid during rotary motion. Commonly used fluids are coolants, cutting fluids, cryogenic fluid or pneumatic pressure for controlled inflation of a diaphragm. The primary requirement here is to ensure a leak proof transmission of pressurized fluid along with a positive transmission of power. In order to achieve the above application, an Automatic Tool Changer has been developed which can be incorporated in a CNC milling center / machine. Here the tool can undergo rotary motion while simultaneously maintaining a supply of pressurized fluid. This engagement of the slave component is such that it ensures a leak proof transfer of pressurized fluid from the master to the slave while transmitting rotary motion. The spindle of the CNC machine provides a facility for accurate positioning of the tool head so that the engagement and disengagement can be achieved at predefined positions. The cutting tools are mounted on the slave components which are held at predefined positions in the tool magazine.

Some Investigative/ Development Projects undertaken during July- December, 2020

Sl No	Title	PI and Dept/ Centre	Client
1	Predictive Imaging to reduce cooling and preconditioning time of subjects in Thermal Imaging Protocol	Prof. AP Protosh, EE	Niramai Health Analytix Pvt Ltd
2	Incubation for Bioanalytical Characgterization	Prof. AS Rathore, CHEME	Agilent Technologies India Pvt Ltd
3	Electro-oxidation of CH4 Gas to Liquid Products	Prof. A Verma, CEME	Cenovus Energy Inc
4	Adequacy Assessment of Proposed 10 MLD Common Effluent Treatment Plant	Prof. V Kumar, CRDT	SPML Infra Ltd
5	Adequacy and Performances Assessment of Plant condition of 3 MLD STP	Prof. V Kumar, CRDT	Bionics Consortium Pvt Ltd
6	Vetting of the Technical Specifications of Nehru Museum-Phase 1	Prof. JU Maheswari, CE	Nehru Memorial Museum and Library
7	Design a smart Mailbox for home	Prof. S Singh, DOD	Budgies Design
8	Investigation of Natural Gas Processing Unit Design	Prof. KK Pant, CHEME	Simon India Ltd
9	Replacement of CR(VI) Coating for Phosphor Bronze Bellows	Prof. J Jain, DMSE	Switzer Process Instruments Pvt Ltd
10	Development of Virtual Learning Solution for K-8 Students	Prof. A Mittal, KSBS	Macmillan Publishers India Pvt Ltd

11	Intent inference from a structured video using computer vision and Natural language understanding	Prof. B Lall, EE	Human Learning Ltd
12	Consultancy for specification and scope definition of following Display Assembly-MEA front	Prof. B Lall, EE	Samsung India Electronics Pvt Ltd
13	Development of Escherichia coli expression system for the production of secreted recombinant proteins specifically growth factors and cytokines	Prof. KJ Mukherjee, DBEB	Labex Corporation
14	Technology Development of Mutants of L-Asparaginase	Prof. B Kundu, KSBS	Redcliffe Life Science Pvt Ltd
15	Course Material Development	Prof. J Kumar, DOD	Newgen Digital Works Pvt Ltd
16	Development of a software tool for designing optimum Supercritical Steam Turbine Cycle	Prof. SS Sinha, AM	BHEL, Haridwar
17	Evaluation and Benchmarking of Personal Protection Equipment (PPE) for COVID-19	Prof. AK Ghosh, DMSE	MP Polymers
18	Evaluation and Experimental design of PPE Kit and Mask	Prof. AK Ghosh, DMSE	Myzen Enterprises Pvt Ltd
19	Design & Development of Metal based Composites	Prof. N Bhatnagar, ME	Star Wire Ltd
20	Hand on Training of Engineers on TIDSP-F28379D Processor at customers premises	Prof. AK Jain, EE	MV Electrosystems
21	Development & support for Motor Control Solutions by MathWorks	Prof. AK Jain, EE	Mathworks India Pvt Ltd
22	Investigation of Natural Gas Processing Unit Design	Prof. KK Pant, CHEME	Simon India Ltd
23	Replacement of CR(VI) Coating for Phosphor Bronze Bellows	Prof. J Jain, DMSE	Switzer Process Instruments Pvt Ltd
24	Low Carbon Cement-Phase-III	Prof. S Bishnoi, CE	Swiss Agency for Development and Corporation
25	Developing Criteria Including Trail Runs for Suitability of TA Pins	Prof. P Mahajan, AM	Ordnance Factory
26	Design and development of low light impaging sensors	Prof. M Sarkar, EE	Army Design Bureu
27	Inspection of Grossly Polluting Industry (GPIs)	Prof. V Kumar, CRDT	Central Pollution Control Board (CPCB)
28	Design of 5GHz Wide band PLL	Prof. RK Palani, EE	Mixed-Signal Devices Inc
29	Material characterization of small scale components	Prof. J Jain, DMSE	Havells India Ltd
30	DPR for setting up of Centre for Advanced Research in Textiles (CARTex)	Prof. AK Agarwal, TFE	EdCIL India Ltd
31	Aerial computational 3D display with ability to take touch input"	Prof. K Khare, PHY	Blueed Technology Pvt Ltd
32	Failure analysis of Monel 400 and SS 316L Bourdon tubes	Prof. J Jain, DMSE	Switzer Process Instruments Pvt Ltd
33	Impact Analysis of modifications in hardware in the card of MSDAC (Multi-section Digital Axle Counter) of Central Electronics Ltd	Prof. A Dixit, EE	Central Electronics Ltd
34	Hardware Validation of Electronic Interface of MSDAC with Electronic Interlocking and Signaling Equipment of of Central Electronics Ltd."	Prof. A Dixit, EE	Central Electronics Ltd
35	Unified Multimodal Indexing	Prof. SB Jagannath, CSE	Huawei Technologies India Pvt Ltd
36	Performance Evaluation and Adequacy Assessment of Existing Common Effluent Treatment Plants (CETPs)	Prof. V Kumar, CRDT	Haryana State Industrial and Infrastructure Development Corporation (HSIIDC)
37	Advise for design and development of hydraulic motor and valve for powering an electric generator	Prof. SR Kale, ME	Allied Engineering Works Pvt Ltd
38	A climatology based decision support system for fenestration applications	Prof. SB Roy, CAS	Hindalco Industries

HAPPENINGS

Technology Transfer at FITT

Technology transfer of "LED based UVC-Disinfection System for use in Escalators or Moving Walkways for Handrail Sanitization" to Olive Led at FITT office in the presence of PI-Prof. Harpal Singh, CBME, IIT Delhi, Mr Shyam S Jindal, CA, MD-Olive Exports and Dr Anil Wali MD, FITT- August, 2020

MOUs with FITT

FITT IIT Delhi signs MoU with Nayara Energy and Gexcon towards the establishment of a Centre of Excellence in Process Safety & Risk Management on November 4, 2020 at the Senate Room IIT Delhi

MoU between Indigram Labs Foundation and FITT was signed for supporting innovators and further strengthening of the start-up ecosystem on October 5, 2020

SNIPPETS

FITT invites proposals under the 18th Biotechnology Ignition Grant (BIG) Scheme of BIRAC from January 1, 2021 to February 15, 2021. For details: www.fitt-iitd.in

GRANTEES FOR BIG- 16

1. Big Bang Boom Solutions
2. Hempstreet Medicare
3. Ms. Vaishnavi GVS
4. GenElek
5. Dr Amandeep Kaur
6. Curiouz Techlab Pvt Lab
7. Mr. Ashutosh Patra
8. NatureDots

CORPORATE MEMBERSHIP OF FITT

FITT invites the industry/industry associations/R&D organisations and financial institutions to become corporate members of FITT at a nominal annual subscription. A corporate client can participate in technology transfer and joint R&D programmes of the Institute on a priority basis with FITT providing the interface. Membership form can be downloaded from www.fitt-iitd.in

New Corporate Members:

1) Vista Information Systems Pvt. Ltd.
2) High Performance Textiles Pvt Ltd
3) Techinvention Lifecare Pvt Ltd
4) Shriram Laboratory
5) Umeandus Technologies India Pvt Ltd
6) Nektor Engineers & Project Consultants

NEWS AND ANNOUNCEMENT SECTION

IIT Delhi research opens way for secure sustainable, green energy ecosystem

IIT Delhi, through its Industrial Research and Development (IRD) Unit, has been conducting research in the field of energy ecosystems. Many governments and nongovernment organisations working in the area of energy have come forward to establish their Centres of Excellence (CoE) at IIT Delhi due to its scientists' deep technology research outcome in the energy domain… *Source: https://www.shiksha.com/engineering/articles/iit-delhi-research-opens-way-for-secure-sustainable-green-energy-ecosystem-blogId-51571)- December 11, 2020*

CSC ties up with IIT-D for design and innovation lab December 30, 2020

State-run Common Services Centers (CSC) on Tuesday said it has partnered with IIT- Delhi to establish a design and innovation lab which will conduct research on new products and services for village level entrepreneurs (VLE). The labs would conduct research on design-led innovations related to leveraging livelihood and enhancing all-round entrepreneurial outlook, a statement said. The project named 'Design and Innovation in VLE's Indigenous Network Ecosystem' (Divine) Lab will promote design and innovation among the village level entrepreneurs (VLE), CSC said in a statement. CSC managing director Dinesh Tyagi said that CSCs and VLEs are driven by an entrepreneurial spirit… *Source: Daily Pioneer- December 30, 2020*

P Rajendran Felicitated with IIT Delhi Alumni Award for Outstanding Contribution to National Development – for Corporate Excellence December 30, 2020

NIIT Limited, a global leader in Skills and Talent Development, announced that P. Rajendran, Joint Managing Director & Co-Founder, NIIT Ltd. has been felicitated with the prestigious IIT Delhi Alumni Award for Outstanding Contribution to National Development - Corporate Excellence. The award was presented during an exclusive three-day online Conclave - IIT Delhi Alumni Fest 2020 themed 'Exploring the New Normal' from 26-28 December 2020, and part of IIT Delhi's Diamond Jubilee celebration… *Source: Business Wire- December 30, 2020*

IIT Delhi ranks #1 in employability in India, 27th in World: Global Employability Ranking & Survey 2020

IIT Delhi is the most employable university in the country as per the recently released Global Employability Ranking and Survey or GEURS 2020. In a comprehensive report on the performance of the universities of various countries, India has shown an commendable increase in overall employability, rising to number 15 position, vis a vis its 23rd rank in 2010… *Source: Times Now- November 19, 2020*

IIT Delhi scientist wins Thought Leader Award

An IITD, scientist has won the Agilent Thought Leader Award for his contributions to the field of biopharmaceutical research and his work with advanced methods for molecular characterisation of biosimilars…. "Prof. Rathore is a leading scientist among an extremely motivated and talented research group at IIT Delhi. We are privileged to have him as the first recipient of an Agilent Thought Leader Award in India," said Bharat Bhardwaj, the country general manager for Agilent India."This award will bring financial support, cutting-edge products, consumables, services, and, most importantly, Agilent expertise to his research. Over the next three years, this relationship will further help Prof. Rathore's development of biosimilar drugs, and improving human health."… *Source: https://www.abpeducation.com*

Call for Applications- POSOCO Power System Awards (PPSA)-2021

Power System Operation Corporation Limited (POSOCO), a Government of India Enterprise in association with FITT has launched the 9th edition of the POSOCO Power System Awards (PPSA)- 2021. PPSA is a part of the CSR initiatives of POSOCO, through which it encourages research and growth in the area of power systems and strengthening of industry-academia collaboration. This award program is funded by POSOCO while FITT is the implementing partner at the national level. The call for applications is open from December 10 to 31, 2020… *Source: Business Standard- December 19, 2020*

LEADERSHIP AT FITT

Prof. V Ramgopal Rao, Director IIT Delhi, Chairman, FITT

Dr Anil Wali, MD, FITT

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