खम्मा घणी...!!

भारतीय प्रौद्योगिकी संस्थान जोधपुर

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Khamma Ghani...!!

Indian Institute of Technology Jodhpur

नये वर्ष में नयी ख़बरें...

2017 के पहले पहर में खुशख़बरी यह है कि भारतीय प्रौद्योगिकी संस्थान जोधपुर ने अपने स्थाई परिसर के मास्टरप्लान के लिये "निष्क्रिय वास्तुकला डिज़ाइन" श्रेणी में GRIHA का निदर्शनात्मक प्रदर्शन पुरस्कार प्राप्त किया। संकाय सदस्यों द्वारा प्रस्तावित 8 नये प्रायोजित अनुसंधान परियोजनाओं को स्वीकृति मिली। संकाय सदस्यों द्वारा लिखे गये 60 शोध पत्र प्रकाशित हुये। यह ध्यान देने योग्य विषय है कि समय की इस अवधि में हमारे कुछ संकाय सदस्यों को अपने संबंधित क्षेत्र में उनके योगदान के लिये राष्ट्रीय और अंतरराष्ट्रीय मान्यता प्राप्त हुई है। तथा संस्थान ने 4 नये संकाय सदस्य, 9 प्रशासनिक कर्मचारी एवं एक तकनीकी कर्मचारी सदस्य को अपने परिवार में जोड़ा। संस्थान में राष्ट्र की भावना का सम्मान करते हुए 68वां गणतंत्र दिवस मनाया गया एवं और कुछ महत्वपूर्ण कार्यक्रमों का भी आयोजन किया गया।

भारतीय प्रौद्योगिकी संस्थान जोधपुर ने अपने स्थाई परिसर में स्थानांतरित होने की तैयारियाँ पूर्ण कर ली है। अगला शैक्षणिक सत्र संस्थान के स्थाई परिसार में आरम्भ होगा।

क्षेमा प्रकाश (संपादक)

BIG NEWS

IIT Jodhpur receives GRIHA Exemplary Performance Award for its Masterplan under 'Passive Architecture Design'

The masterplan of IIT Jodhpur's Permanent Campus was selected for the 2017 Exemplary Performance Award by the Green Rating for Integrated Habitat Assessment (GRIHA) Council under 'Passive Architecture Design' category. GRIHA Council is an independent platform for the interaction on scientific and administrative issues related to sustainable habitats in the Indian subcontinent. It was founded by TERI (The Energy and Resources Institute, New Delhi) with support from MNRE (Ministry of New and Renewable Energy, Government of India). The award was given at The GRIHA Summit during 2-3 March 2017, at India Habitat Centre, New Delhi.

Sanjeeb Mukherjee, Executive Engineer (Civil), IIT Jodhpur receiving the award

Academics

New Research Projects

Chhanda Chakraborti, Professor of Philosophy, Department of Humanities and Social Sciences, IIT Kharagpur joins the Department of Humanities & Social Sciences, IIT Jodhpur as an Adjunct Faculty Member. Professor Chakraborti addressed the B.Tech. Students, and her lecture was on "Introduction to Logic".

Professor Chhanda Chakraborti with the 3rd & 4th year Students of B.Tech. during her lecture

Ph.D. Thesis Defense

Belal Usmani, Ph.D. Student, Department of Physics, successfully defended his thesis titled "Development of Spectrally Selective Absorber Materials and Coatings for Photothermal Applications" on 06 March 2017. It was supervised by Ambesh Dixit, Assistant Professor, Department of Physics.

R&D

New Research Projects

Ritu Gupta, Assistant Professor, Department of Chemistry, has been sanctioned the sponsored research project *"Development of electrochemical energy storage from carbon rich waste"* by Science and Engineering Research Board, Government of India. The duration of the project is 3 years (2017-20).

Rajlaxmi Chouhan, Assistant Professor, Department of Electrical Engineering, has been sanctioned the sponsored research project *"Noise-enhanced Edge-preserving Image Denoising using Stochastic Resonance"* by Science and Engineering Research Board, Government of India. The duration of the project is 3 years (2017-20).

Somnath Ghosh, Assistant Professor, Department of Physics, has been sanctioned the sponsored research project *"Application specialty optical fibers and towards 1D random lasers in disordered lattices"* by Department of Science and Technology, Government of India. The duration of the project is 1 years (2017).

Ambesh Dixit, Assistant Professor, Department of Physics, has been sanctioned the sponsored research project *"Development of nanostructured Cu2ZnSn(S/Se)4 thin films and their electronic properties for next generation solar photovoltaic applications"* by Department of Science and Technology, Government of India. The duration of the project is 3 years (2017-20).

Sushmita Paul, Assistant Professor, Department of Bioscience and Bioengineering has been sanctioned the sponsored research project *"Integrative Approach for Identification of Disease Genes of Type II Diabetes"* by Science and Engineering Research Board, Government of India. The duration of the project is 3 years (2017-20)."

Chiranjoy Chattopadhyay, Assistant Professor, Department of Computer Science and Engineering has been sanctioned the sponsored research project *"Development of Multimodal Search Framework For Architectural Floor Plan"* by Science and Engineering Research Board, Government of India. The duration of the project is 3 years (2017-20).

Puneet Sharma, Assistant Professor, Department of Mathematics has been sanctioned the sponsored research project *"Automorphism Groups of Induced Symbolic Systems"* by National Board for Higher Mathematics, Department of Atomic Energy, Government of India. The duration of the project is 3 years (2017-20).

Subhashish Banerjee, Assistant Professor, Department of Physics has been sanctioned the sponsored research project *"Probing the Foundations of Quantum Mechanics in Neutrino Oscillations"* by Department of Science and Technology, Government of India. The duration of the project is 2 years (2017-2018).

Research Publications

Department of Bioscience and Bioengineering

Journal Articles

1. Arora,N., Tripathi,S., Singh,A.K., Mondal,P., **Mishra,A.**, & Prasad,A. (2017). Micromanagement of Immune System: Role of miRNAs in Helminthic Infections. Frontiers in Microbiology, 8. ISSN: 1664-302X. https://doi.org/10.3389/fmicb.2017.00586
2. **Jha,S.**, Brickey,W.J., & Ting,J.P.-Y. (2017). Inflammasomes in Myeloid Cells: Warriors Within. Microbiology Spectrum, 5(1). ISSN: 2165-0497. https://doi.org/10.1128/microbiolspec.MCHD-0049-2016
3. Maji,P., Shah,E., & **Paul,S**. (2017). RelSim: An integrated method to identify disease genes using gene expression profiles and PPIN based similarity measure. Information Sciences, 384, 110–125. ISSN: 0020-0255. https://doi.org/10.1016/j.ins.2016.06.034
4. **Paul,S.,** Lakatos,P., Hartmann,A., Schneider-Stock,R., & Vera,J. (2017). Identification of miRNA-mRNA Modules in Colorectal Cancer Using Rough Hypercuboid Based Supervised Clustering. Scientific Reports, 7, 42809. ISSN: 2045-2322. https://doi.org/10.1038/srep42809
5. Saxena,S., & **Jha,S.** (2017). Role of NOD- like Receptors in Glioma Angiogenesis: Insights into future therapeutic interventions. Cytokine & Growth Factor Reviews. ISSN: 1359-6101. https://doi.org/10.1016/j.cytogfr.2017.02.001

6. Sharma,N., Suresh,S., **Debnath,A.,** & **Jha,S.** (2017). Trigonella seed extract ameliorates inflammation via regulation of the inflammasome adaptor protein, ASC. Frontiers in Bioscience (Elite Edition), 9, 246–257. ISSN: 1945-0508. https://doi.org/10.2741/E798, https://www.bioscience.org/2017/v9e/af/799/fulltext.htm
7. Upadhyay,A., Joshi,V., Amanullah,A., Mishra,R., Arora,N., Prasad,A., & **Mishra,A.** (2017). E3 Ubiquitin Ligases Neurobiological Mechanisms: Development to Degeneration. Frontiers in Molecular Neuroscience, 10. ISSN: 1662-5099. https://doi.org/10.3389/fnmol.2017.00151201
8. Sharma,N., & **Jha,S**. (2017). NLRC3 mediated PI3K-mTOR inhibition takes a toll on colon cancer. Translational Cancer Research, 6(2), S296–S300. ISSN: 2219-6803. https://doi.org/10.21037/12813
9. Freeman, L., Guo, H., David, C. N., Brickey, W. J., **Jha, S.,** & Ting, J. P.-Y. (2017). NLR members NLRC4 and NLRP3 mediate sterile inflammasome activation in microglia and astrocytes. Journal of Experimental Medicine, 214(5), 1351-1370. ISSN: 1540-9538. https://doi.org/10.1084/jem.20150237

Book Chapters

1. Maji,P., & **Paul,S.** (2016). Fundamentals of Rough-Fuzzy Clustering and Its Application in Bioinformatics. In Pattern Recognition and Big Data (Vols. 1–0, pp. 513–543). World Scientific. ISBN: 978-981-314-454-5. https://doi.org/10.1142/9789813144552_0015
2. **Jha, S**., Brickey, W. J., & Ting, J. P.-Y. (2017). Inflammasomes in Myeloid Cells: Warriors Within. In S. Gordon (Ed.), Myeloid Cells in Health and Disease: A Synthesis (pp. 305–324). Washington, DC: ASM Press. ISBN: 978-1-55581-919-4. http://www.asmscience.org/content/book/10.1128/9781555819194.chap17

Department of Chemistry

Journal Articles

1. Gupta,N., Rao,K.D.M., **Gupta,R.,** Krebs,F.C., & Kulkarni,G.U. (2017). Highly Conformal Ni Micromesh as a Current Collecting Front Electrode for Reduced Cost Si Solar Cell. ACS Applied Materials & Interfaces, 9(10), 8634–8640. ISSN: 1944-8252. https://doi.org/10.1021/acsami.6b12588
2. **Gupta,R.,** Kumar,A., Sadasivam,S., Walia,S., Kulkarni,G.U., Fisher,T.S., & Marconnet,A.M. (2017). Microscopic Evaluation of Electrical and Thermal Conduction in Random Metal Wire Networks. ACS Applied Materials & Interfaces. ISSN: 1944-8252. https://doi.org/10.1021/acsami.7b00342
3. Krishnan,Y., Sharma,N., Lourderaj,U., & **Paranjothy,M.** (2017). Classical Dynamics Simulations of Dissociation of Protonated Tryptophan in the Gas Phase. The Journal of Physical Chemistry A. 121(23), 4389-4396. ISSN: 1089-5639. https://doi.org/10.1021/acs.jpca.7b01359
4. Kumar,D., Krishnan,Y., Paranjothy,M., & **Pal,S.** (2017). Analysis of Molecular Interaction of Drugs within β-Cyclodextrin Cavity by Solution-State NMR Relaxation. The Journal of Physical Chemistry B, 121(13), 2864–2872. ISSN: 1520-6106. https://doi.org/10.1021/acs.jpcb.6b11704
5. Sharma,P.R., Soni,V.K., Pandey,S., Choudhary,G., Plappally,A.K., & **Sharma,R.K.** (2017). Dipicrylhydrazine: A Versatile Visual Anions Sensor. Journal of Environmental Chemical Engineering, 5(3), 2232-2239. ISSN: 2213-3437. https://doi.org/10.1016/j.jece.2017.04.048
6. Soni,V.K., Sharma,P.R., Choudhary,G., Pandey,S., & **Sharma,R.K.** (2017). Ni/Co-Natural Clay as Green Catalysts for Microalgae Oil to Diesel-Grade Hydrocarbons Conversion. ACS Sustainable Chemistry & Engineering. ISSN: 2168-0485. https://doi.org/10.1021/acssuschemeng.7b00659
7. Vandana, Chaubey,B., Dhaharwal,A.K., & **Pal,S**. (2017). Solvent-dependent binding interactions of the organophosphate pesticide, chlorpyrifos (CPF), and its metabolite, 3,5,6-trichloro-2-pyridinol (TCPy), with Bovine Serum Albumin (BSA): A comparative fluorescence quenching analysis. Pesticide Biochemistry and Physiology, 139, 92-100. ISSN: 0048-3575. https://doi.org/10.1016/j.pestbp.2017.04.011

Department of Computer Science and Engineering

Journal Articles

1. Kalshetti,P., Bundele,M., Rahangdale,P., Jangra,D., **Chattopadhyay,C., Harit,G.,** & Elhence,A. (2017). An interactive medical image segmentation framework using iterative refinement. Computers in Biology and Medicine, 83, 22–33. ISSN: 0010-4825. https://doi.org/10.1016/j.compbiomed.2017.02.002

Conference Papers

1. Bandyopadhyay,S., & **Banik,A.** (2017). Polynomial Time Algorithms for Bichromatic Problems. In Algorithms and Discrete Applied Mathematics (pp. 12–23). Springer, Cham. ISBN: 978-3-319-53007-9. https://doi.org/10.1007/978-3-319-53007-9_2
2. **Banik,A.,** Katz,M.J., Packer,E., & Simakov,M. (2017). Tracking Paths. In Algorithms and Complexity (pp. 67–79). Springer, Cham. ISBN: 78-3-319-57586-5. https://doi.org/10.1007/978-3-319-57586-5_7
3. Sharma,D., **Chattopadhyay,C.,** & **Harit,G.** (2016). A unified framework for semantic matching of architectural floorplans. In 2016 23rd International Conference on Pattern Recognition (ICPR) (pp. 2422–2427). ISBN: 978-1-5090-4847-2. https://doi.org/10.1109/ICPR.2016.7899999
4. Sharma,K., & **Badarla,V.** (2016). FlowFurl: A flow-level routing for faulty data center networks. In 2016 IEEE International Conference on Advanced Networks and Telecommunications Systems (ANTS) (pp. 1–6). ISBN: 978-1-5090-2193-2. https://doi.org/10.1109/ANTS.2016.7947837

5. Yedidsion,H., **Banik,A.,** Carmi,P., Katz,M.J., & Segal,M. (2017). Efficient data retrieval in faulty sensor networks using a mobile mule. In 2017 15th International Symposium on Modeling and Optimization in Mobile, Ad Hoc, and Wireless Networks (WiOpt) (pp. 1–8). Parish, France. ISBN: 978-3-9018-8290-6. https://doi.org/10.23919/WIOPT.2017.7959880

Department of Electrical Engineering

Journal Articles

1. Bharti,D., Raghuwanshi,V., Varun,I., Mahato,A., & **Tiwari,S.P.** (2017). Photo-response of Low Voltage Flexible TIPS-pentacene Organic Field-Effect Transistors. IEEE Sensors Journal, (99), 1–1. ISSN: 1530-437X. https://doi.org/10.1109/JSEN.2017.2700260
2. Korolev,D.S., Mikhaylov,A.N., Belov,A.I., Konakov,A.A., Vasiliev,V.K., Nikolitchev,D.E., Surodin,S.I., Tetelbaum,D.I. & **Kumar,M.** (2017). Composition and luminescence of Si and SiO2 layers co-implanted with Ga and N ions. International Journal of Nanotechnology, 14(7–8), 637–645. ISSN: 1475-7435. https://doi.org/10.1504/IJNT.2017.083438
3. Kumar,M., Bhati,V.S., Ranwa,S., Singh,J., & **Kumar,M.** (2017). Pd/ZnO nanorods based sensor for highly selective detection of extremely low concentration hydrogen. Scientific Reports, 7(1), 236. ISSN: 2045-2322. https://doi.org/10.1038/s41598-017-00362-x
4. Meng,L., Shafiee,Q., Trecate,G.F., Karimi,H., **Fulwani,D.M.,** Lu,X., & Guerrero,J.M. (2017). Review on Control of DC Microgrids. IEEE Journal of Emerging and Selected Topics in Power Electronics, PP(99), 1–1. ISSN: 2168-6777. https://doi.org/10.1109/JESTPE.2017.2690219
5. Rathore,B., & **Shaik,A.G.** (2017). Wavelet-alienation based transmission line protection scheme. IET Generation, Transmission & Distribution, 11(4), 995–1003. ISSN: 1751-8695. https://doi.org/10.1049/iet-gtd.2016.1022
6. Singh,S., **Fulwani,D.M.,** & Kumar,V. (2017). Emulating DC constant power load: a robust sliding mode control approach. International Journal of Electronics, 0(0), 1–18. ISSN: 1362-3060. https://doi.org/10.1080/00207217.2017.1312703

Conference Papers

1. Bhandari,M., **Fulwani,D.M.,** & Gupta,R. (2017). Event triggered control of two time scale system. In 2017 Indian Control Conference (ICC) (pp. 309–314). ISBN: 978-1-5090-1795-9. https://doi.org/10.1109/INDIANCC.2017.7846493
2. Bhandari,M., **Fulwani,D.M.,** & Gupta,R. (2017). Event triggered control of singularly perturbec linear system based on its slow and fast model. In 2017 IEEE International Conference on Industrial Technology (ICIT) (pp. 791–796). Toronto, ON, Canada. ISBN: 978-1-5090-5320-9. https://doi.org/10.1109/ICIT.2017.7915460
3. Mahia,R.N., & **Fulwani,D.M.** (2017). Selection of optimal set of driver nodes based on networked sensitivity in complex networked systems. In 2017 Indian Control Conference (ICC) (pp. 332–337). ISBN: 978-1-5090-1795-9. https://doi.org/10.1109/INDIANCC.2017.7846497
4. Singh,M., & **Shaik,A.G.** (2016). Bearing fault diagnosis of a three phase induction motor using stockwell transform. In 2016 IEEE Annual India Conference (INDICON) (pp. 1–6). ISBN: 978-1-5090-3646-2. https://doi.org/10.1109/INDICON.2016.7838972

Book Chapter

1. Shiblee,M., **Yadav,S.K.,** & Chandra,B. (2017). Fault Diagnosis of Internal Combustion Engine Using Empirical Mode Decomposition and Artificial Neural Networks. In Huang DS., Hussain A., Han K., Gromiha M. (Eds.), Intelligent Computing Methodologies (pp. 188–199). Springer, Cham. ISBN: 978-3-319-63315-2. https://doi.org/10.1007/978-3-319-63315-2_17

Department of Humanities and Social Sciences

Journal Articles

1. Thimm,V., **Chaudhuri,M.,** & Mahler,S.J. (2017). Enhancing Intersectional Analyses with Polyvocality: Making and Illustrating the Model. Social Sciences, 6(2), 37. ISSN: 2076-0760. https://doi.org/10.3390/socsci6020037
2. **Sharma,A.,** & Dewangan,R.L. (2017). Can wisdom be fostered: Time to test the model of wisdom. Cogent Psychology, 4(1), 1381456. ISSN: 2331-1908. https://doi.org/10.1080/23311908.2017.1381456

Department of Mathematics

Preprints

1. **Sharma,P.** (2017). Induced Dynamics of Non-Autonomous Discrete Dynamical Systems. arXiv:1703.05897 [Math]. Retrieved from http://arxiv.org/abs/1703.05897
2. **Sharma,P.,** & Raghav,M. (2017). On Dynamics Generated by a Uniformly Convergent Sequence of Maps. arXiv:1703.06640 [Math]. Retrieved from http://arxiv.org/abs/1703.06640

Book Chapter

1. Singh,S.P., & **Bhatnagar,G.** (2017). A Novel Chaos Based Robust Watermarking Framework. In B.Raman, S.Kumar, P.P.Roy, & D.Sen (Eds.), Proceedings of International Conference on Computer Vision and Image Processing (pp. 439–447). Springer Singapore. ISBN: 978-981-10-2107-7. https://doi.org/10.1007/978-981-10-2107-7_40

Department of Mechanical Engineering

Journal Articles

1. Boddupalli,N., Goenka,V., **Chandra,L.,** Obaidli,A.A., Calvet,N., & Richter,C. (2017). Fluid flow analysis behind heliostat using LES and RANS: A step towards optimized field design in desert regions. AIP Conference Proceedings, 1850(1), 110001. ISSN: 0094-243X. https://doi.org/10.1063/1.4984475
2. Doughty,B., **Srinivasan,S.G.,** Bryantsev,V.S., Lee,D., Lee,H.N., Ma,Y.Z., & Lutterman,D.A. (2017). Absolute Molecular Orientation of Isopropanol at Ceria (100) Surfaces: Insight into Catalytic Selectivity from the Interfacial Structure. The Journal of Physical Chemistry C. ISSN: 1932-7447. https://doi.org/10.1021/acs.jpcc.7b03272

Conference Papers

1. Salunkhe,D.H., Sharma,S., Topno,S.A., Darapaneni,C., Kankane,A., & **Shah,S.V.** (2016). Design, trajectory generation and control of quadrotor research platform. In 2016 International Conference on Robotics and Automation for Humanitarian Applications (RAHA) (pp. 1–7). ISBN: 978-1-5090-5203-5. https://doi.org/10.1109/RAHA.2016.7931876

Department of Physics

Journal Articles

1. Adhikari,B., **Banerjee,S**., Adhikari,S., & **Kumar,A.** (2017). Laplacian matrices of weighted digraphs represented as quantum states. Quantum Information Processing, 16(3), 79. ISSN: 1573-1332. https://doi.org/10.1007/s11128-017-1530-1
2. **Alok,A.K.,** Kumar,D., Kumbhakar,S., & Sankar,S.U. (2017). D∗ polarization as a probe to discriminate new physics in ¯B→D∗τ¯ν. Physical Review D, 95(11), 115038. ISSN: 2470-0029. https://doi.org/10.1103/PhysRevD.95.115038
3. Babbar,P., Tiwari,B., Purohit,B., Ivanishchev,A., Churikov,A., & **Dixit,A**. (2017). Charge/discharge characteristics of Jahn–Teller distorted nanostructured orthorhombic and monoclinic Li 2 MnSiO 4 cathode materials. RSC Advances, 7(37), 22990–22997. ISSN: 2046-2069. https://doi.org/10.1039/C7RA02840G
4. **Banerjee,S., Alok,A.K.,** Omkar,S., & Srikanth,R. (2017). Characterization of Unruh channel in the context of open quantum systems. Journal of High Energy Physics, 2017(2), 82. ISSN: 1029-8479. https://doi.org/10.1007/JHEP02(2017)082
5. Laha,S.S., Abdelhamid,E., Arachchige,M.P., Kumar,A., **& Dixit,A.** (2017). Ferroic ordering and charge-spin-lattice order coupling in Gd-doped Fe3O4 nanoparticles relaxor multiferroic system. Journal of the American Ceramic Society, n/a-n/a. ISSN: 1551-2916. https://doi.org/10.1111/jace.14739
6. Saini,L., Patra,M.K., Jani,R.K., Gupta,G.K., **Dixit,A.,** & Vadera,S.R. (2017). Tunable Twin Matching Frequency (fm1/fm2) Behavior of Ni1−xZnxFe2O4/NBR Composites over 2–12.4 GHz: A Strategic Material System for Stealth Applications. Scientific Reports, 7, 44457. ISSN: 2045-2322. https://doi.org/10.1038/srep44457
7. Sedrakian,A., Xu-Guang,H., **Sinha,M.,** & Clark,J.W. (2017). From microphysics to dynamics of magnetars. Journal of Physics: Conference Series, 861(1), 012025. ISSN: 1742-6596. https://doi.org/10.1088/1742-6596/861/1/012025
8. Thapliyal,K., Pathak,A., & **Banerjee,S.** (2017). Quantum cryptography over non-Markovian channels. Quantum Information Processing, 16(5), 115. ISSN: 1573-1332. https://doi.org/10.1007/s11128-017-1567-1
9. Tripathi,B., Tripathi,G., **Dixit,A.,** Saxena,N., Sharma,K.B., & Katiyar,R.S. (2016). Study of Hydrogen Adsorption on GO/PS Based Flexible Nanocomposites at Room Temperature. Advanced Science Letters, 22(11), 3768–3772. ISSN: 1936-6612. https://doi.org/10.1166/asl.2016.8056
10. Usmani,B., Vijay,V., Chhibber,R., & **Dixit,A.** (2017). Optimization of sputtered zirconium thin films as an infrared reflector for use in spectrally-selective solar absorbers. Thin Solid Films, 627, 17–25. ISSN: 0040-6090. https://doi.org/10.1016/j.tsf.2017.02.055

Preprints

1. **Alok,A.K.,** Bhattacharya,B., Datta,A., Kumar,D., Kumar,J., & London,D. (2017). New Physics in b→sμ+μ− after the Measurement of RK. arXiv:1704.07397 [Hep-Ex, Physics:hep-Ph]. http://arxiv.org/abs/1704.07397
2. **Alok,A.K.,** Bhattacharya,B., Kumar,D., Kumar,J., London,D., & Sankar,S.U. (2017). New Physics in b→sμ+μ−: Distinguishing Models through CP-Violating Effects. arXiv:1703.09247 [Hep-Ph]. http://arxiv.org/abs/1703.09247
3. **Banerjee,S.,** Kumar,N.P., Srikanth,R., Jagadish,V., & Petruccione,F. (2017). Non-Markovian Dynamics of Discrete-Time Quantum Walks. arXiv:1703.08004 [Quant-Ph]. http://arxiv.org/abs/1703.08004
4. Bhattacherjee,S., Biswas,A., & **Ghosh,S.** (2017). Towards Ultra-Large Bandwidth and a New Class of Specialty Optical Fibers. arXiv:1704.05710 [Physics]. http://arxiv.org/abs/1704.05710
5. Dixit,K., **Alok,A.K., Banerjee,S.,** & Kumar,D. (2017). Geometric phase and neutrino mass hierarchy problem. arXiv:1703.09894 [Hep-Ph, Physics:quant-Ph]. http://arxiv.org/abs/1703.09894
6. Dutta,S., Adhikari,B., & **Banerjee,S.** (2017). Zero discord quantum states arising from weighted digraphs. ArXiv:1705.00808 [Math-Ph, Physics:Quant-Ph]. http://arxiv.org/abs/1705.00808
7. Laha,A., Biswas,A., & **Ghosh,S.** (2017). Unconventional next nearest neighbor resonance coupling and states flipping mechanism in degenerate optical microcavities. arXiv:1704.04951 [Physics]. http://arxiv.org/abs/1704.04951

Awards & Recognitions

Amit Kumar Mishra wins ISCB Young Scientist Award for 2017

Amit Kumar Mishra, Assistant Professor, Department of Biology, IIT Jodhpur, has won the CSIR-CDRI Medicinal and Process Chemistry Division based Indian Society of Chemists and Biologists "ISCB Young Scientist Award for the year 2017" in the area of Biological Sciences. The award comprises of a cash award of Rs. 5000/- and a citation, which is being conferred in a ceremony at SRM University, Tamil Nadu during 8-10 February 2017.

Mahesh Kumar chosen a Member, Global Young Academy

Mahesh Kumar, Assistant Professor, Department of Electrical Engineering, selected as a Member of the Global Young Academy (GYA). The GYA, consisting of 200 members, provides a rallying point for outstanding young scientists from around the world. The GYA was founded by the IAP: The Global Network of Science Academies and the World Economic Forum. Members of the GYA come together to address topics of global importance and are passionate about the role of science in creating a better world. Members are elected based on the excellence of their science and their commitment to research. They are elected for 4-year terms, after which they move to alumni status. All members are expected to actively contribute to the organisation's goals and activities. According to the GYA, they are at the vanguard of the international scientists' movement and form a strong voice to impact global development for more effective science around the world. The GYA is developing a number of projects aimed at improving the effectiveness of science, including in developing countries, by building linkages between young scientists from different countries.

Mahesh Kumar chosen a Core Committee Member, Indian National Young Academy of Science (INYAS)

Mahesh Kumar, Assistant Professor, Department of Electrical Engineering, Selected as a Core Committee Member of the Indian National Young Academy of Science (INYAS). The Academy was founded by the Indian National Science Academy in December 2014 and came into existence with the selection of its 20 founding members by the INSA Council in May 2015. Aspiring to be the voice of young scientists across the country, INYAS has 52 members and 7 elected core committee members on board, presently.

Amit Kumar Mishra elected as Member, Royal Society of Biology

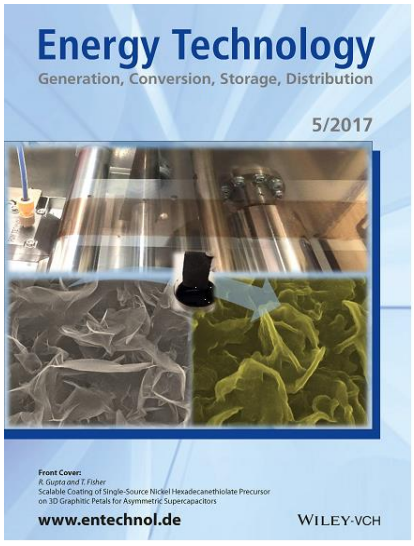
Amit Kumar Mishra, Assistant Professor, Department of Bioscience & Bioengineering, IIT Jodhpur, has been elected as a Member of the Royal Society of Biology, London on 1 April 2017.

Mahesh Kumar selected for receiving 2017 ISSS Young Scientist Award

Mahesh Kumar, Assistant Professor, Department of Electrical Engineering, has been selected for 2017 the Institute for Smart Structures and Systems (ISSS) Young Scientist Award by. He will be sharing this award with another young researcher, and it will be presented at the Eighth ISSS International Conference on Smart Materials, Structures & Systems being organised during 5-7 July 2017 at the Indian Institute of Science, Bangalore. The award carries an ISSS Medal, a Citation, and a cash prize of Rs. 50,000.

The Institute for Smart Structures and Systems was founded in the year 1999 to promote Smart Technology in India, whose Founder President was Dr. V. K. Aatre, former Scientific Advisor to Defence Minister, Government of India. ISSS confers Young Scientist Awards on outstanding researchers (below 40 years of age) for their work done in India, in the area of micro and smart systems, especially on someone who has carried out extensive research beyond their academic programs, on a topic relevant to this area.

Research work of Ritu Gupta and T. S. Fisher (Purdue University) placed on May 2017 cover of Energy Technology: Generation, Conversion, Storage, Distribution, a Wiley-Interscience Journal

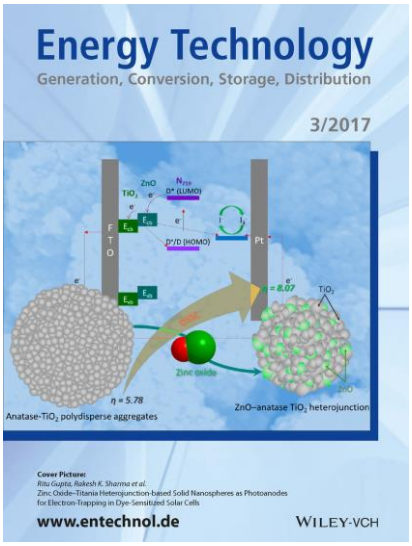


From the research paper "Scalable Coating of Single-Source Nickel Hexadecanethiolate Precursor on 3D Graphitic Petals for Asymmetric Supercapacitors" authored by Ritu Gupta, Assistant Professor, Department of Chemistry, IIT Jodhpur and Timothy S. Fisher, Professor, Purdue University, which was published in the May 2017 issue of Energy Technology: Generation, Conversion, Storage, Distribution, published by Wiley Interscience, a figure illustrating the "schematic of roll-to-roll printing of nickel hexadecanethiolate ink that can be decomposed under ambient condition to yield NiOxSy as a pseudocapacitive layer" was chosen to be on the cover of the Journal.

Scalable Coating of 3D Graphene Architectures: The cover image illustrates the schematic of roll-to-roll printing of nickel hexadecanethiolate ink that can be decomposed under ambient condition to yield NiOxSy as a pseudocapacitive layer. The nickel-based pseudocapacitive layer is conformally coated onto three-dimensional graphitic structures to increase the surface area and enhance the capacitance. An optimized loading of the pseudocapacitive layer onto three-dimensional graphene petals yields a supercapacitor with high specific capacitance (2360 F g1) and stability over 5000 cycles.

More details can be found in the full paper by Ritu Gupta and Timothy Fisher of Indian Institute of Technology Jodhpur and Purdue University, USA, respectively (DOI: 10.1002/ente.201600475).

Research work of Ritu Gupta, Rakesh K. Sharma, Kiran P. Shejale, and Devika Laishram placed on March 2017 cover of Energy Technology: Generation, Conversion, Storage, Distribution, a Wiley-Interscience Journal



From the research paper "Zinc Oxide–Titania Heterojunction-based Solid Nanospheres as Photoanodes for Electron-Trapping in Dye-Sensitized Solar Cells" authored by Ritu Gupta and Rakesh K. Sharma (Assistant Professors of Chemistry) and Kiran P. Shejale and Devika Laishram (Ph.D. Students of Department of Chemistry), which was published in the May 2017 issue of Energy Technology: Generation, Conversion, Storage, Distribution, published by Wiley Interscience, a figure depicting the "schematic of synthesized TiO2 nanospheres and the changes brought about by the incorporation of ZnO" was chosen to be on the cover of the Journal.

Hierarchical TiO2/ZnO nanospheres: The ZnO/TiO2nanospheres are aggregates of crystallites of ZnO that are uniformly dispersed over TiO2 to make heterojunctions. This study describes the different doping percentages tested with the optimized value of 1 % showing the best efficiency and the highest porous surface area among the samples. The spherical morphology of the synthesized material provides good light harvesting by efficiently trapping electrons. Moreover, this arrangement leads to increased electron carrier density, leading to highly efficient solar cells.

More details can be found in the full paper by Kiran P. Shejale, Devika Laishram, Ritu Gupta and Rakesh K. Sharma from the Indian Institute of Technology Jodhpur on page 489 in Issue 3, 2017 (DOI: 10.1002/ente.201600357).

STUDENTS

Activities & Achievements

Mahindra Research Valley (MRV), Chennai, commends IIT Jodhpur students during Industry Immersion Program (IIP)

Three B.Tech. Students from the Department of Mechanical Engineering, Rajendra Manda, Tejas Gattani and Nakka Sanket Gangadhar were recognized for their excellent performance during Industry Immersion Program (IIP) at Mahindra Research Valley (MRV), Chennai.

The projects involved Modeling, Simulation, Control, Optimization of Vehicle Ride, Experimental Study of Ride Comfort, and Head Toss measurements of Seated Occupants on TUV300 using Four-Poster Test Rig. These activities were carried out under the mentorship of Dr. Divyanshu Joshi, Lead Engineer, Mahindra Research Valley, Chennai. In a short span of 8 weeks, Head Toss measurement along with the Ride Model Development was carried out. The work was appreciated for innovative thinking and implementation of academic knowledge in the industrial domain.

The team received a spot award of Rs. 5000 along with an appreciation letter from Mr. Prahalada Rao, Senior Vice President, Mahindra Automotive and Farm Equipment, Chennai.

From Left: Nakka Sanket Gangadhar, Tejas Gattani, Prahalada Rao, Rajendra Manda and Divyanshu Joshi

NEW JOININGS

IIT Jodhpur welcomes the following new Faculty Members and Staff Members into the family:

Name	Designation	Department / Office	Date of Joining
Sriram G. Srinivasan	Assistant Professor	Mechanical Engineering	23 January 2017
Subhash Pandey	Advisor (Administration)	Office of Administration	14 February 2017
Shashank Choudhary	Junior Assistant	Office of Mechanical Engineering	16 February 2017
Dheeraj Upadhyay	Junior Assistant	Office of Infrastructure Engineering	17 February 2017
Neeraj Kumar	Junior Assistant	Office of Administration	22 February 2017

Suresh Chandra Phulara	Junior Assistant	Office of Stores & Purchase	22 February 2017
Ramniwas Dhayal	Junior Assistant	Office of Students	01 March 2017
Sapna Sankhla	Junior Assistant	Office of Accounts	03 March 2017
Narayan Dadhich	Junior Assistant	Office of Accounts	22 March 2017
Poonam	Junior Technician	Department of Bioscience & Bioengineering	03 April 2017
Arjun Das	Physical Training Instructor	Office of Students	20 April 2017
Priyanka Singh	Assistant Professor	Department of Bioscience & Bioengineering	01 May 2017
Shakti Ranjan Patra	Assistant Registrar	Office of Stores & Purchase	01 May 2017
Sandip Murarka	Assistant Professor	Department of Chemistry	03 May 2017
Anil Shukla	Assistant Professor	Department of Computer Science & Engineering	08 May 2017

PERMANENT CAMPUS

68th Republic Day Celebration

The 68th Republic Day of the nation was celebrated by Members of IIT Jodhpur community, on 26 January 2017, at the First Building of the Permanent Campus in Karwad Village. The Director hoisted the National Flag, and the National Anthem was patriotically sung by all present.

Flag Hosting by Director IIT Jodhpur on 26 January 2017

Cultural Program by IIT Jodhpur Students on 26 January 2017

Cultural Program by IIT Jodhpur Students on 26 January 2017

INSTITUTE EVENTS

International Women's Day

The 2017 International Women's Day was pre-celebrated at the Institute on 7 March 2017 from 4.30 pm onwards. The event was organized by the *Women Cell*, IIT Jodhpur. Ms. Kshema Prakash, Convener, *Women Cell*, introduced the program to the guests. The *Women Cell*, organized a Micro-Book Writing Competition for Students and Employees. During this program, Prizes and Certificates of Appreciation were given away to the winners. The event had an invited talk by Latha Menon, noted film and documentary maker based in Chennai. She shared her journey as a film maker with the gathering and enchanted them with her talk and media clips.

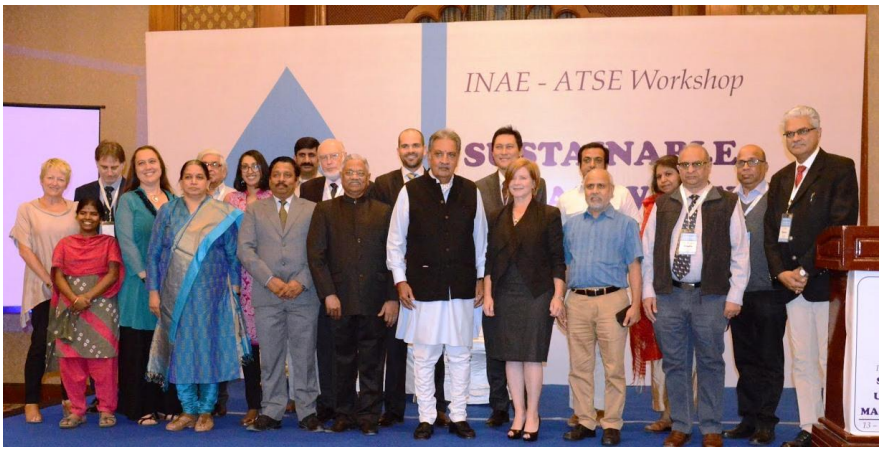
Latha Menon addressing the audience

Audience enjoying the program during International Women's Day

Joint Workshop on "Sustainable Urban Water Management" in Jodhpur

A workshop was organized on "Sustainable Urban Water Management" jointly by the Indian National Academy of Engineering (INAE) and the Australian Academy of Technological Sciences & Engineering (ASTE) during 13 - 15 March 2017 in Jodhpur. The workshop was presided over by Professor B. N. Suresh, President, Indian National Academy of Engineering, and chaired by Shri M. L. Bapna, Advisor (Industry – Academic Interface), IIT Jodhpur.

This workshop was focused on selecting priority themes and influencing a transformative change in the way urban water services are delivered and managed in cities. These are necessary in responding to future uncertainties and vulnerability brought about by an increasing world population that are concentrated in cities, a continually evolving economic and governance structure and a changing climate. The program was jointly coordinated by Professor C. V. R. Murty, Director, IIT Jodhpur, India, and Professor Tony Wong, Chief Executive, CRC for Water Sensitive Cities, Monash University, Australia. The 3-day intensive workshop had parallel sessions with interesting talks from several national and international experts. Also, H. H. Gaj Singh II, Maharaja of Jodhpur addressed the participants of the workshop



Participants of the Workshop with H. H. Gaj Singh II, Maharaja of Jodhpur

3rd International Yoga Day

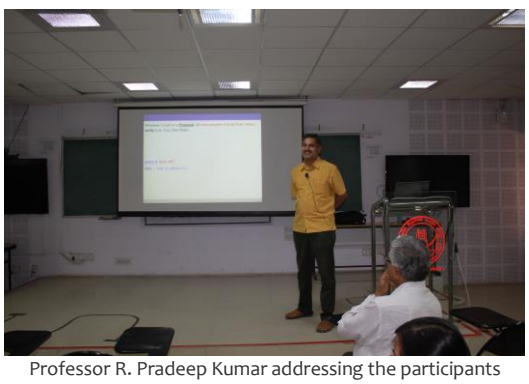
The Third International Yoga Day was organized on 21 June 2017 at GPRA Residential Campus of IIT Jodhpur. Faculty, Staff and Students actively participated in the event.

Yoga Instructor demonstrating to the participants

Yoga session in progress

Harmony Workshop

A 3-day *Harmony Workshop for Value-based Education* was organized in the Institute during 20-22 April 2017. Professor Rajeev Sangal, Director IIT BHU, Varanasi, (pioneers of this initiative in IIT system) and Professor R. Pradeep Kumar, Professor and Registrar, IIIT Hyderabad, the pioneers of this initiative were the key resource persons for this workshop. The program was attended by the Faculty Members, the critical stakeholders in the Institute, Faculty Members from All Indian Institute of Medical Sciences, Jodhpur, and special guests from Kendriya Vidyalaya Sangathan, Jaipur.



Professor R. Pradeep Kumar addressing the participants

Participants engrossed in a group work

OUTREACH

Vanguard Lectures

The following Vanguard Lectures were organised during the months of January to June, by the Department of Computer Science & Engineering, Department of Mechanical Engineering, and Department of Chemistry, which were attended by the Faculty Members, Students, and Technical Staff Members.


Shankar Iyer

Shankar Iyer, Consulting Member, Oracle India, addressed the members of the Department of Computer Science & Engineering on *"Distributed Computing + Databases = Distributed Databases"* on 10 January 2017.


N. Ramakrishnan

N. Ramakrishnan, Professor, Mechanical Engineering, IIT Gandhinagar, addressed the members of the Department of Mechanical Engineering on *"Innovation, Design & Product Development"* on 20 January 2017.


Subir Kumar Saha

Subir Kumar Saha, Naren Gupta Chair Professor and Head, Department of Mechanical Engineering, IIT Delhi, addressed the members of the Department of Mechanical Engineering on *"R2 : Robotics to Rural"* on 01 February 2017.


S. Lanceros-Méndez

S. Lanceros-Méndez, Professor, Center of Physics, University of Minho, 4710-057 Braga, Portugal, addressed the members of the Department of Chemistry on *"The key role of smart and functional materials in the development of modern technology"* on 20 February 2017.

DEPARTMENT IN FOCUS – Chemistry

The *Department of Chemistry* at IIT Jodhpur is where Chemistry sees Technology. At IIT Jodhpur, Chemistry embraces a distinctive locus in science and technology collaboration. The department is making technological contribution to new materials for energy solutions, catalysis and water. Fundamental understanding of chemical dynamics, biological phenomena, Nuclear Magnetic Resonance and Quantum Chemistry are growing in prominence. The vision of the Department of Chemistry is to strive to be acknowledged for excellence in teaching, research, and outreach.

Programs

The Department of Chemistry hosts two degree Programs, namely:
(a) M.Sc. (Chemistry) Program, and
(b) Ph.D. Program with specialisation in Chemistry.

People

The Department has eight regular Faculty Members working in different areas.

Name	Designation	Research Area
Rakesh K. Sharma	Assistant Professor & Head	Catalysis for Energy and Stereocontrol, Feedstock Chemistry, Fuel and Lubricants, Energy Storage and Water Treatment Technology
Ananya Debnath	Assistant Professor	Theoretical and Computational Chemistry
Atul Kumar	Assistant Professor	Quantum Information Processing
Manikandan Paranjothy	Assistant Professor	Theoretical and Computational Chemistry, Chemical Reaction Dynamics
Ramesh K. Metre	Assistant Professor	Main-group organometallic chemistry, Coordination polymers, Inorganic-organic hybrid materials and Metal phosphonate and phosphate chemistry
Ritu Gupta	Assistant Professor	Nanomaterials & Nanodevices for Water, Energy and Healthcare
Samanwita Pal	Assistant Professor	Solution and solid state NMR and NQR spectroscopy
Sandip Murarka	Assistant Professor	Synthetic Organic Chemistry and Medicinal Chemistry

The department has two Technical Staff Members assisting the Faculty Members, and 19 Ph.D. Students. Prospective candidates for Faculty Member positions are encouraged to visit our recruitment page to know more about the procedure: http://iitj.ac.in/faculty/facultypositions. Also, the Department invites applications from young Doctoral Degree holders (below the age of 35 years) to Post-Doctoral Positions in the Department.

Infrastructure

The core objective of the chemistry laboratory of IIT Jodhpur is to train students in scientific methods that would solve real problems at the frontier of our understanding of the matter. This is a multi-use laboratory and provides a number of resources to assist undergraduate, graduate and Ph.D. students in planning their professional careers after completing their academic program at IIT Jodhpur.

This laboratory maintains a broad spectrum of state-of-the-art instrumentation including basic laboratory set up (for organic, inorganic, organometallic and material synthesis), Nitrogen, Oxygen and LPG gas line, Inert atmosphere boxes, vacuum line work, fume hood pH, conductivity, BOD, COD, meters, Rotary evaporator, Vacuum pumps, centrifuges, High pressure reactor system, Chiller, microbalances, Orbital Shaker, GC, HPLC and Radleys ready reactor. In the academic year 2012-2013, the lab procured equipment such as Polarimeter, Melting point Instrument, Solar Simulator, Digital Titrator, Kugalrohr, Electrochemical work stations, and Battery analysers.

A 500 MHz NMR spectrometer with solid state probe is an essential resource, whose mission is to make a state-of-the-art high field NMR and methods available to researchers, providing a place for them to pursue their projects and develop new methodologies in NMR methods.

Scanning Electron Microscope & Electron Dispersion Spectrometer

Glow Box

Powder X-ray Diffractometer

R&D Projects

The Faculty Members of the Department are currently running eleven sponsored research projects being funded by Government of India research funding agencies like the Science & Engineering Research Board (Department of Science & Technology), Department of Biotechnology, Department of Science & Technology, Indo-Portuguese Research Cooperation in Science & Technology, and Panasonic Corporation. Also, technical support is required to effectively meet the technical objectives of the projects. Towards this end, temporary positions when available are announced from time to time on the Institute's website, for young scientists and technicians to seek training and engagement with advanced subjects of the ongoing research projects.

Collaboration

Faculty Members of the Department of Chemistry are keen to collaborate with individuals from academia, R&D laboratories and industry in India and abroad, in areas of mutual interest. The domains of these collaborations could include teaching of courses, organizing short courses, co-authoring of books, undertaking joint research, and developing technologies.

Outreach

The Department of Chemistry hosts weekly seminars for Ph.D. Students and also invites eminent persons from academia and industry for guest lectures and talks. Two guest lectures by Professor Biman Bagchi, F.N.A., F.A.Sc., F.N.A.Sc., FTWAS, Solid State and Structural Chemistry Unit, Indian Institute of Science, Bangalore, have been organized on 17 February 2017. The lectures are:

1. "Dynamics of complex systems: from binary mixtures to protein folding and biological water" and
2. "Voyage through space and time: microscopic view of elementary chemical and biological events".

Faculty Members, Staff Members and Students of the Department of Chemistry

Editorial Board

Coordinator (Faculty)
Coordinator (Academics)
Coordinator (R&D)
Coordinator (Students)
Deputy Librarian

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