

FACULTY ACTIVITIES



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Sponsored Projects

Academic activities described in this section pertain to individual faculty members with respect to research and development, consulting, recognition, publications and honorary work for other academic organizations.

This year sponsoring agencies have sanctioned the following research projects to IIT Gandhinagar faculty with the total budget of Rs 2,73,21,660/-.

- ▲ **Synthesis of monodispersed magnetic nanoparticles for biomedical applications and to develop lab facilities** sponsored by Department of Science and Technology, New Delhi. Principal Investigator: **Prof. Kinnari Parekh**.
- ▲ **Microscopic global nuclear mass formula** sponsored by the Department of Science and Technology. Principal Investigator: **Prof. Ameeya A. Bhagwat**.
- ▲ **Quantification of butanol synthesis using elementary modes and sensitivity analysis** sponsored by the Department of Science and Technology. Principal Investigator: **Prof. Kalyan Gayen**.
- ▲ **A novel process for precipitation and stabilization of drug nanoparticles in aqueous suspensions using CO₂** sponsored by Department of Biotechnology, Government of India. Principal Investigator: **Prof. Sameer V. Dalvi**.
- ▲ **An experimental investigation to locate and assess the severity of winding deformations in power transformers** sponsored by the Department of Science and Technology, Government of India. Principal Investigator: **Prof. Ragavan K.**
- ▲ **Engineering zymomonas mobilis for the efficient production of biofuels from lignocellulosic biomass** sponsored by Department of Biotechnology, Government of India. Principal Investigator: **Prof. Supreet Saini**.
- ▲ **Reprogramming cellular networks in salmonella enterica to develop novel vaccines** sponsored by Department of Biotechnology, Government of India. Principal Investigator: **Prof. Supreet Saini**.
- ▲ **Rapid precipitation of drug nanoparticles using ultrasonically-driven mixing device** sponsored by Department of Science and Technology, Government of India. Principal Investigator: **Prof. Sameer V. Dalvi**.
- ▲ **Quantitative near- and mid-infrared wavelength modulation spectroscopy for gas sensing applications** sponsored by Department of Science and Technology, Government of India. Principal Investigator: **Prof. Arup Lal Chakraborty**.
- ▲ **Development of 1-d thermal hydraulic code for computation of unsteady steam water flow and super critical water flow in horizontal and vertical channel type reactor** sponsored by Atomic Energy Regulatory Board, Government of India. Principal Investigator: **Prof. Manmohan Pandey**.
- ▲ **Virtual geotechnical laboratory** sponsored by Ministry of Human Resource Development, Government of India. Principal Investigator: **Prof. Amit Prashant**.

- ▲ **Photo-processes of donor-acceptor substituted polyenes in ionic liquid media** sponsored by the Department of Science and Technology, Government of India. Principal Investigator: **Prof. Sriram Kanvah Gundimeda**.
- ▲ **A cognitivist exploration of the concept of privacy behavior and experience** sponsored by Department of Science and Technology, Government of India. Principal Investigator: **Prof. Jaison A. Manjaly**.

Consulting Projects

This year different agencies have sanctioned the following consulting projects to IIT Gandhinagar faculty with the total budget of Rs 14,40,000/-.

- ▲ **Seismic Studies of Area Around Bhagyam Oil Field** sponsored by L & T - GULF Private Ltd and executed jointly by IITGN, IIT Kanpur and IIT Kharagpur with **Prof. Sudhir K. Jain** as coordinator.
- ▲ **Training on Low-Cost High-Tech Automation** sponsored by Ashok Leyland with **Prof. N. Ramakrishnan** as Principal Investigator.

Continuing Education Course

A self-financed course on **Geotechnical Aspects of Earthquake Engineering** (coordinators **Prof. Amit Prashant** and **Prof. Ajanta Sachan**, March 8-11, 2011) attracted 109 professionals from organizations such as, NTPC, NPCIL, AFCONS, Gammon India, L&T, Reliance, HCC, Royal-Haskoing, HPCL, BARC, NHPC, PWD, CPWD, TCE, DMRC and EIL. Some students and teachers of engineering colleges also attended the course. **Prof. Sudhir K. Jain**, IIT Gandhinagar and **Prof. Debasis Roy**, IIT Kharagpur also delivered lectures as part of the course.



Awards and Recognition

The following faculty members have received special awards and recognition by external bodies during 2010-11:



Prof. Nitin Padhiyar (Chemical Engineering) was awarded a **Research Fellowship** by the Indo-US Science & Technology Forum (IUSSTF). The one-year fellowship commences in July 2010, and Prof. Padhiyar is currently carrying out research at the Carnegie Mellon University, USA.

Prof. Basudeb Guha-Khasnobis (Economics) has been invited to serve on the editorial board of **VAANIJYA**, a bi-annual foreign trade journal published by the Ministry of Commerce and Industry, Government of India.



Prof. Murali Damodaran (Mechanical Engineering) has been invited to be on the editorial board of the Conference **PARENG 2011: The Second International Conference on Parallel, Distributed, Grid and Cloud Computing for Engineering** to be held at Ajaccio, Corsica, France during April 12-15, 2011.

Prof. Sameer Dalvi (Chemical Engineering) was awarded the **IEI Young Engineers Award** for the year 2010-11 by the Institution of Engineers (India).



Prof. Supreet Saini (Chemical Engineering) was awarded the **Innovative Young Biotechnologist Award** for the year 2010 by the Department of Biotechnology, Government of India.

Honorary Work

Prof. Arup Lal Chakraborty, Electrical Engineering

- ▲ Taught a course module on Experimental Methodologies to M. Tech. students of Vishwakarma Government Engineering College, Ahmedabad, October 2010.

Prof. D. V. Pai, Mathematics

- ▲ Member, Project Management and Monitoring Committee (PMMC) for the Centre of Interdisciplinary Mathematical Sciences (CIMS), Banaras Hindu University.
- ▲ Associate Editor, Asian European Journal of Mathematics, World Scientific Publishers, London and Singapore.
- ▲ Reviewer, Mathematics Reviews (American Mathematical Society).

Prof. Dhiren Patel, Computer Science and Engineering

- ▲ Program Co-Chair for the International Workshop on Large Scale Biometric Identity Management Systems, C-DAC Mumbai, January 23-24, 2011
- ▲ Member of Technical Committee for GoI - MHRD - Central Counseling Board - AIEEE 2010.
- ▲ Member of Core Committee - Awareness for GoI, DIT - Information Security Education & Awareness Project - 2010.
- ▲ Member of PRSG - Bhartiya AFIS project - DIT - 2010-11.

Prof. Joyce Mekié, Electrical Engineering

- ▲ Examined M. Tech. dissertations for Electrical Engineering students of SVNIT, Surat.

Prof. Kinnari Parekh, Physics

- ▲ Reviewer of the manuscripts for 55th DAE Solid State Physics Symposium organized by BARC, Mumbai.
- ▲ Manuscript reviewer for Journal of Magnetism and Magnetic Materials, Elsevier and Journal of Nanoparticle Research, Springer publications.

Prof. Koshy Tharakan, Philosophy

- ▲ Reviewed the NPTEL course on Contemporary Indian Philosophy submitted to IIT Bombay

Prof. K. V. V. Murthy, Electrical Engineering

- ▲ Evaluated a Ph. D. Thesis submitted to VTU-Karnataka.
- ▲ Invited to review seven papers and Chair three technical sessions in ICAC3 '11 - International Conference on Advances in Computing, Control and Communication

2011, organized by Fr. Conceicao Rodrigues College of Engineering, Bandra, Mumbai, January 28–29, 2011.

- ▲ Member, Governing Council, NMAM Institute of Technology, Nitte, Karnataka.

Prof. S. L. Narayanamurthy, Chemical Engineering

- ▲ Honorary Technical Advice to Central Excise Commissionerate.

Prof. Sudhir K. Jain, Civil Engineering

- ▲ Executive Vice President, International Association for Earthquake Engineering.
- ▲ Chairman, International Activities Committee, Earthquake Engineering Research Institute, USA.
- ▲ Member, Board of Management, NIIT University, Neemrana, Rajasthan.
- ▲ Member, INAE Silver Jubilee Celebrations Committee, Indian National Academy of Engineering.
- ▲ Member, Advisory Editorial Board, Earthquake Engineering and Structural Dynamics, John Wiley and Sons.
- ▲ Member, Editorial Board, Earthquake Engineering and Engineering Vibrations, Springer-Verlag.



A. L. Chakraborty



D. V. Pai



D. Patel



J. Mekie



K. Parekh



K. Tharakan



K. V. V. Murthy



S. L. Narayanamurthy



S. K. Jain

Academic Lectures

- ▲ **Prof. S. L. Narayanamurthy** delivered a Lecture on "Framework to Support Quality Higher Education" at the FICCI-Gujarat Government Seminar on "Higher Education and Skill Development in Gujarat", April 2010.
- ▲ **Prof. Dhiren Patel** delivered an invited talk on "Cloud Computing", organized by Bahrain Internet Society, April 2010.
- ▲ **Prof. Kinnari Parekh** conducted research work on mineral resources and nanofluids at Korea Institute of Geoscience and Mineral Resources (KIGAM), for one month during the summer of 2010. She also conducted experiments at the Paul Scherrer Institute, Switzerland during June 28, 2010 to July 11, 2010.
- ▲ **Prof. K. V. V. Murthy** conducted a training course on Signals and Systems for the faculty members of the Lovely Professional University, Jalandhar and Punjab Technical University during July 12-16, 2010.
- ▲ **Prof. K. V. V. Murthy** and **Prof. D. V. Pai** delivered lectures at an AICTE sponsored Staff Development Programme, "Mathematical Applications in Engineering Profession" organized by L. J. Institute of Engineering and Technology, Ahmedabad during June 30-July 01, 2010.
- ▲ **Prof. Bireswar Das** participated in the Formal Methods Update Meeting (FMU) at Dhirubhai Ambani Institute of Information and Communication Technology, Gandhinagar during July 15-17, 2010.
- ▲ **Prof. Dhiren Patel** visited Dubai and Abu Dhabi during August 20-23, 2010 to provide consulting services to Secure Matrix India Pvt. Ltd.
- ▲ **Prof. Deepthi Shanker** presented a paper at the International Conference, "The Global Economic Crises: Perceptions and Impacts", Switzerland, September 10-11, 2010.
- ▲ **Prof. Sudhir K. Jain** delivered a talk at International Conference on Innovative Building Technologies for Affordable Mass Housing, New Delhi, October 28, 2010.
- ▲ **Prof. Chinmay Ghoroi** presented two papers at the AIChE Annual Meeting, Salt Lake City, UT, USA, November 7-12, 2010.
- ▲ **Prof. Koshy Tharakan** presented a paper titled "Methodology of Social Sciences: A Phenomenological Perspective" in the UGC National Seminar on Science, Society and Liberty, Mohan Lal Sukhadia University and Government Meera Girl's College, Udaipur, November 12-13, 2010.
- ▲ **Prof. D. V. Pai** chaired the Planning Committee Meeting of the forthcoming 2011 SERC School on Matrix Methods at the Centre for Mathematical Sciences, Pala Campus, Arunapuram, Kerala, November 18-19, 2010.
- ▲ **Prof. Supreet Saini** presented the paper at The Future of Biofuels - NextGenFuels2010, Delhi, November 30- December 2, 2010.
- ▲ **Prof. K. V. V. Murthy** delivered the keynote address at the 2nd National Conference at Parul Institute of Engineering and Technology, Vadodara, December 4-5, 2010.

- ▲ **Prof. Subrata Pal** gave a presentation at the Theoretical Chemistry Symposium-2010, IIT Kanpur, December 8-12, 2010.
- ▲ **Prof. Kinnari Parekh** presented a paper at the International Workshop on Nanotechnology NANO-EEB at St Aloysius College, Mangalore, December 14-16, 2010.
- ▲ **Prof. Bireswar Das** participated in the Foundations of Software Technology and Theoretical Computer Science (FSTTCS) at the Institute of Mathematical Sciences, Chennai, India during December 15-18, 2010.
- ▲ **Prof. Naran Pindoriya** attended the India Energy Conclave 2010, organized by the Confederation of Indian Industries and the Government of Gujarat in Ahmedabad, December 20, 2010.
- ▲ **Prof. Arup Lal Chakraborty** presented a paper at the International Conference on Fiber Optics and Photonics - PHOTONICS 2010, IIT Guwahati, December 11-15, 2010.
- ▲ **Prof. Joyce Mekie** attended an International Conference on VLSI Design, in Chennai during January 2-7, 2011.
- ▲ **Prof. Koshy Tharakan** presented a paper titled "Gandhi and the Environmental Discourse: Towards a Synthesis of Anthropocentrism and Eco-centrism in the Times of Post-Globalization" in the International Seminar on Globalization, Values and World Peace, Gujarat University, Ahmedabad, January 7-8, 2011.
- ▲ **Prof. Dhiren Patel** visited City University London and British Telecom for research work on Cloud Computing Security, December 14, 2010 - January 8, 2011.
- ▲ **Prof. Abhijit Sarkar** presented a paper titled "Efficacy of Indian Rating Agencies: A Review of the Ratings Assigned to Bank Subordinated Debt Issues" at the International Finance Conference 2011, IIM Calcutta, during January 9-12, 2011.
- ▲ **Prof. Pia Thielmann** delivered an invited lecture on "Writing (on) the Margin: Some Impressions on Malawian Women Writers.", Laxmi Niwas Mittal Institute of Information Technology (LNMIIT), Jaipur, on January 22, 2011.
- ▲ **Prof. Sudhir K. Jain** delivered an invited talk in the International Symposium on 2001 Bhuj Earthquake and Advances in Earthquake Science held at ISR Gandhinagar during January 22-24, 2011.
- ▲ **Prof. Jagmohan Tyagi** gave an invited talk on "Existence of a non-negative solution for a class of semilinear elliptic systems with sign-changing nonlinearity" at Research Meet, Department of Applied Mathematics, M. S. University, Baroda on January 23, 2011.
- ▲ **Prof. Deepthi Shanker** chaired a technical session in an International Conference on Globalization - Will the 21st century be Asia's?, organized by Mount Carmel Institute of Management, Bangalore during January 27-28, 2011.
- ▲ **Prof. N. Ramakrishnan** gave an invited lecture at the 2nd International Conference at Mundra Port, Kutch, Gujarat on January 28, 2011.
- ▲ **Prof. Koshy Tharakan** presented a paper titled "Human Sciences in the Times of Postmodernism" in the National Symposium on The Human Sciences in the Time of Disciplinary Decadence, Balvant Parekh Centre for General Semantics and Other Human Sciences and Forum on Contemporary Theory, Baroda, February 10-12, 2011.

- ▲ **Prof. Bireswar Das** attended a conference on Computing for Science Discovery and Innovations: A Roadmap, Homi Bhabha Auditorium, TIFR, Mumbai, February 18-19, 2011.
- ▲ **Prof. Pia Thielmann** delivered a lecture titled “India-Germany: Cultural Differences”, at Dhirubhai Ambani Institute of Information and Communication Technology (DAIICT), February 22, 2011.
- ▲ **Prof. B. D. Agarwal** delivered an invited talk titled “Role of Humanities and Social Sciences in Engineering Curriculum”, to the ASME's Student Leadership Seminar at SKIT, Jaipur on February 27, 2011.
- ▲ **Prof. Arup Lal Chakraborty** delivered an Invited Talk titled “Industrial Applications of Fibre-optic Sensors”, at the Annual Photonics Workshop, Cochin University of Science and Technology, Cochin, Kerala on February 28, 2011.
- ▲ **Prof. Pia Thielmann** delivered a talk titled “Promoting (Flexible) Gender Roles through Juvenile Literature: An Example from Malawi”, 10th Biennial International Comparative Literature Association of India (CLAI) Conference, Central University of Gujarat, Gandhinagar, March 4, 2011.
- ▲ **Prof. Pia Thielmann** delivered a invited plenary talk titled “Women Between Two Worlds in the Fiction of Amma Darko”, at the International Seminar, Kishangarh, Rajasthan, March 8, 2011.
- ▲ **Prof. Abhijit Sarkar** conducted a session on Panel Data at the National Symposium-cum-Workshop at Guru Nanak Dev University, Amritsar during March 9-10, 2011.
- ▲ **Prof. Naran Pindoriya** delivered a lecture titled “Computational Intelligence: Methods and Applications”, at SRPEC, Mehsana, Gujarat on March 10, 2011.
- ▲ **Prof. K. V. V. Murthy** delivered two Invited Extension-Lectures titled “Vector-space interpretations of Fourier and related transforms and applications”, at Swami Keshvananda Institute of Technology (SKIT), Jaipur, March 31, 2011.

Publications

The Institute faculty is actively encouraged to present their research work for peer-review through publication in reputed journals and conference proceedings, and also to make presentations at conferences. These activities give the faculty important feedback on their work, and enhance the visibility of the Institute in the national and international academic arena. The Institute also encourages dissemination of knowledge through other avenues such as publication of books, book chapters and monographs. The following is a list of publications by faculty during 2010-11:

Books

Basudeb Guha-Khasnobis (co-edited with Jo Beall, and Ravi Kanbur) **Urbanization and Development: Multidisciplinary Perspectives**, published by Oxford University Press (UK), 2010 ISBN: 978-0-19-959014-8.

Vedanth Kadambi and M. Prasad, **An Introduction to Energy Conversion, Vol. III, Turbomachinery**, Second Ed., New Age International Publishers, ISBN:978-81-224-3189-6, 2011.

Book Chapters

Deepthi Shanker, "Intellectual Property Rights and Traditional Knowledge: The Indian Experience" in Nadia Asheulova et al. (ed), "Liberalizing Research in Science and Technology: Studies in Science Policy", St Petersburg: The Russian Academy of Sciences, pp. 474-506, 2010.

Theresa Yuraszeck, Peter Chang, **Kalyan Gayen**, Eric Kwei, Henry Mirsky and Francis J. Doyle III, "Methods for in-Silico Biology: Model Construction and Analysis", in Daniel L. Young and Seth Michelson (ed), "Systems Biology in Drug Discovery and Development", John Wiley & Sons, Inc., (2011), ISBN: 978-0-470-26123-1.

Pia Thielmann, "Writing about Germany: Amma Darko's Beyond the Horizon and Webs" Texts and Theories in Transition: Black African Literature and Imagined Tradition. Ed. Charles Bodunde, Bayreuth 2010, 216-227.

Papers Published in Refereed Journals

K. Ruxton, **A. L. Chakraborty**, W. Johnstone, M. Lengden, G. Stewart and K. Duffin, "Tunable diode laser spectroscopy with wavelength modulation: elimination of residual amplitude modulation in a phasor decomposition approach", Sensors and Actuators B: Chemical, Vol. 150, No. 1, pp 367-375, September 2010.

A. L. Chakraborty, K. Ruxton and W. Johnstone, "Suppression of intensity modulation contributions to signals in second harmonic wavelength modulation spectroscopy", *Optics Letters*, Vol. 35, Iss. 14, pp 2400-2402 (2010).

J. Tyagi, "An oscillation criteria for second-order linear differential equations", *Nonlinear Dynamics and Systems Theory*, Vol. 11 (1), 93-97, 2011.

R. Karthikeyan, K. Manickavasagam and **K. V. V. Murthy**, "Fuzzy Logic Based Control for Parallel Cascade Control", *International Journal on Automatic Control and System Engineering (ICGST-ACSE)*, Vol. 10, No. 2, pp 39-48, December 2010.

M. Kumar and **K. Gayen**, "Developments in Bio-butanol production: New insights", *Applied Energy*, 88, 1999-2010 (2011).

J. E. Shoemaker, **K. Gayen**, N. Garcia-Reyero, E. J. Perkins, D. L. Villeneuve, L. Liu, F. J. Doyle III, "Fathead Minnow Steroidogenesis: in-Silico analyses reveals tradeoffs between nominal target efficacy and robustness to cross-talk", *BMC Systems Biology*, 4:89 (2010).

K. Gayen, **M. Kumar**, M. Rajvanshi, and K. V. Venkatesh, "In Silico quantification of optimal lysine synthesis during growth of *Corynebacterium glutamicum* on mixed substrates (Glucose and Lactate)", *International Journal of Biotechnology and Biochemistry*, 6:1117-1134, (2010).

K. Parekh and H. S. Lee, "Magnetic field induced enhancement in thermal conductivity of magnetite nanofluid", *J. Appl. Phys.* 107 (1) (2010) 09A310.

K. Parekh, "Effect of preparative conditions on magnetic properties of CoFe_2O_4 nanoparticles", *Indian J. of Pure and Applied Physics* 48 (8) (2010) 581.

R. V. Upadhyay, **K. Parekh**, A. Banerjee and K. Kumar, "AC-susceptibility Study In Rare-Earth Substituted Magnetite Ferrofluids", *Physics Procedia*, 9 (2010) 32. ISSN: 1875-3892.

K. Tharakan, "Making Sense of 'Other Culture': Phenomenological Critique of Cultural Realivism", *Journal of Indian Council of Philosophical Research*, Vol. XXVII, No. 4, 2010, pp 61-74.

S. P. Lakshmanan and **M. Pandey**, "Numerical investigations on power ramping procedure for a natural circulation boiling water reactor", *Nuclear Engineering and Design* 240 (4), pp 860-867, 2010.

S. P. Lakshmanan and **M. Pandey**, "Numerical investigation of startup instabilities in parallel-channel natural circulation boiling systems", *Science and Technology of Nuclear*

Installations (Hindawi), Vol. 2010, Article ID 574195, 8 pages, doi:10.1155/2010/574195, 2010.

G. V. Durga Prasad and **M. Pandey**, "Parametric effects on reactivity instabilities and nonlinear oscillations in a nuclear-coupled double channel natural circulation boiling system", Nuclear Engineering and Design, 240 (5), pp 1097-1110, (2010).

R. S. Patil, **M. Pandey** and P. Mahanta, "Effect of scale-up on heat transfer characteristics in upper splash region of circulating fluidized bed risers", Journal of Energy and Power Engineering, 4 (6), Sr. No. 31, (2010).

R. S. Patil, **M. Pandey** and P. Mahanta, "Effect of scale-up of lower and middle splash region on heat transfer characteristics of circulating fluidized bed risers", Proc. IMechE, Part A: Journal of Power and Energy, 224 (A8), 1059-1068, (2010).

R. S. Patil, **M. Pandey** and P. Mahanta, "Parametric studies and effect of scale-up on wall-to-bed heat transfer characteristics of circulating fluidized bed risers", Experimental Thermal and Fluid Science, 35 485-494, (2011).

P. Ghalsasi and P. S. Ghalsasi, "Single Crystal X-ray Structure of BeF₂ : -Quartz", Inorganic Chemistry, 50(1),86-89, (2011).

A. Vishwakarma, **P. Ghalsasi** and P. S. Ghalsasi, "Temperature-dependent Raman spectroscopy of Anilinium Chloride near phase transition", Phys. Status Solidi B, 1-5 (2011) /doi 10.1002/pssb.201046440.

S. Lahiri, "Where Do I Come From? Where Do I Belong? Identity and Alienation in Bharati Mukherjee's Desirable Daughters and Jhumpa Lahiri's The Namesake", South Asian Review, 31.1 (2010), 118-140.

S. Lahiri, "Shakespeare's Cleopatra: A Feminist Reading", The Atlantic Literary Review, 11.3 (2010), 15-28.

B. K. Rastogi, A. P. Singh, B. Sairam, **S. K. Jain**, F. Kaneko, S. Segawa and J. Matsuo, "The Possibility of Site Effects: the Anjar Case, following the past Earthquakes in Gujarat, India", Seismological Research Letters, Vol. 82, No. 1, pp 59-68, 2011, January-February.

S. K. Gundimeda and G. B. Schuster, "Effect of positively charged backbone groups on radical cation migration and reaction in duplex DNA", Can. J. Chem. 89(3): 326 - 330 (2011).

S. Saini, P. D. Aldridge and C. V. Rao, "Continuous control of flagellar gene expression by the σ^{28} -FlgM regulatory circuit in Salmonella enteric", Molecular Microbiology, 2010; doi: 10.1111/j.1365-2958.2010.07444.x.

S. Saini, J. M. Slauch, P. D. Aldridge, and C. V. Rao, "The role of crosstalk in regulating the dynamic expression of the flagellar, Salmonella pathogenicity island 1 (SPI1), and type I fimbrial genes", *Journal of Bacteriology*, 2010; 192: 5767 - 5777.

S. Saini, J. R. Ellermeier, J. M. Slauch, and C. V. Rao, "The role of coupled positive feedback in the expression of the SPI1 type three secretion system in Salmonella", *PLoS Pathogens*, 2010, 6(7): e1001025. doi:10.1371/journal.ppat.1001025.

S. Saini, and C. V. Rao, "SprB is the molecular link between Salmonella Pathogenicity island1 (SPI1) and SPI4", *Journal of Bacteriology*, 2010; 192: 2459 - 2462.

S. Saini, S. Koirala, E. Floess, P. J. Mears, Y. R. Chemla, I. Golding, C. Aldridge, P. D. Aldridge and C. V. Rao, "FliZ induces a kinetic switch in flagellar gene expression", *Journal of Bacteriology*, 2010, doi:10.1128/JB.00751-10.

C. Aldridge, K. Poonchareon, **S. Saini**, T. Ewen, A. Soloyva, C. V. Rao, K. Imada, T. Minamino, and P. D. Aldridge, "The interaction dynamics of a negative feedback loop regulates flagellar number in Salmonella enterica serovar Typhimurium", *Molecular Microbiology*, 2010, doi:10.1111/j.1365-2958.2010.07415.x.

P. F. Colletti, **Y. Goyal***, A. M. Varman, X. Feng, B. Wu and Y. J. Tang, "Evaluating factors that influence microbial synthesis yields by linear regression with numerical and ordinal variables", *Biotechnology and Bioengineering*, Wiley Periodicals (online November 12, 2010 doi 10.1002/bit.22996).

Papers Published in Conference Proceedings

B. Das, V. Arvind, J. Koebler and S. Toda, "Colored Hypergraph Isomorphism is Fixed Parameter Tractable", *Proceedings of the Foundations of Software Technology and Theoretical Computer Science (FSTTCS) 2010*, pages 327-337.

A. L. Chakraborty and W. Johnstone, "Quantitative wavelength modulation spectroscopy for gas measurements - elimination of laser intensity modulation effects", *SPIE Proceedings of 10th International conference on Fiber Optics and Photonics, Photonics 2010*, IIT Guwhati, December 10-16, 2010

M. Joshi, P. Gajjar, S. Ravishankar and **K. V. V. Murthy**, "Multi-resolution fusion in remotely sensed images - Use of Gibb's prior and PSO optimization", *Proc. of the 2010 IEEE International Geoscience And Remote Sensing symposium (IGARSS 2010)*, Honolulu Hawaii, USA, pp 480-483, July 25-30 2010.

M. Joshi, Abhishek S, P. Nanda, S. Ravishankar and **K. V. V. Murthy**, "MAP-MRF Estimation for multi-resolution fusion of remotely sensed images", *Proc. of the 2010 IEEE*

International Geoscience And Remote Sensing Symposium (IGARSS 2010), Honolulu Hawaii, USA, pp 484-487, July 25-30, 2010.

M. Kumar and **K. Gayen**, "Metabolic network analysis of biobutanol production using *Clostridium acetobutylicum*", Chemcon-2010 (Indian Chemical Engineering Congress), 63rd Annual Session of Indian Institute of Chemical Engineers at Annamalai University, December 27-29, 2010.

K. Parekh and H. S. Lee, "Influence of temperature on thermal conductivity of CuO nanofluid", Proceeding of International Workshop on Applications of Nanotechnology to Energy, Environment and Biotechnology - NANO-EEB, Mangalore (2010) 55. ISBN: 978-81-920274-0-1.

G. Mondal and **S. K. Jain**, "Two-dimensional nonlinear seismic analysis of soil-well-pier system considering soil nonlinearity," Proceedings of the 9th U.S. National and 10th Canadian Conference on Earthquake Engineering, CD-ROM, Paper No. 950, Toronto, Canada, July 25-29, 2010.

D. C. Rai, and **S. K. Jain**, "NICEE's role in promoting confined masonry as an appropriate technology for building construction in India", Proceedings of the 9th U.S. National and 10th Canadian Conference on Earthquake Engineering, CD-ROM, Paper No. 1689, Toronto, Canada, July 25-29, 2010.

S. K. Jain, K. Mitra, M. Kumar, and M. Shah, "A rapid visual seismic assessment procedure for RC frame buildings in India", Proceedings of the 9th U.S. National and 10th Canadian Conference on Earthquake Engineering, CD-ROM, Paper No. 972, Toronto, Canada, July 25-29, 2010.

S. K. Jain, "Some recent capacity building activities in India towards seismic risk reduction", Proceedings of the 9th U.S. National and 10th Canadian Conference on Earthquake Engineering, CD-ROM, Paper No. 1677, Toronto, Canada, July 25-29, 2010.

Papers Presented at Conferences

K. Ruxton, **A. L. Chakraborty**, W. Johnstone and G. Stewart, "Tunable diode laser spectroscopy with wavelength modulation: an overview of current techniques and motivations", PHOTON 10, Southampton, UK, August 23-26, 2010.

A. L. Chakraborty and W. Johnstone, "Tunable diode laser spectroscopy of methane for calibration-free industrial measurements of gas concentration and pressure", International Conference on Contemporary Trends in Optics and Optoelectronics, Trivandrum, Jan 17-19, 2011.

C. Ghoroi, R. N. Dave, X. Han, X. D. To, L. Jallo and L. Gurumurthy, "Dispersion of ultrafine powders through surface modification or rapid expansion", Nisshin Engineering Particle Technology International Seminar (NEPTIS) 2010, Sendai, Japan, December 5-8, 2010.

R. N. Dave, L. Gurumurthy, **C. Ghoroi** and D. Harris, "Flow improvement of pharmaceutical blends via surface modification of cohesive APIs", FIP Pharmaceutical Sciences 2010 World Congress in Association with the AAPS Annual Meeting and Exposition, New Orleans, LA, USA, November 14-18, 2010.

X. Han, D. To, Y. Chen, **C. Ghoroi** and R. N. Dave, "Simultaneous micronization and surface modification as a tool to improve flow and dissolution", FIP Pharmaceutical Sciences 2010 World Congress, New Orleans, LA, USA, November 14-18, 2010.

C. Ghoroi, A. Bhakay and R. N. Dave, "Multifaceted characterization of flow, fluidization and packing properties of pharmaceutical powders for discerning the influence of surface modification", AIChE Annual Meeting, Salt Lake City, UT, USA, November 7-12, 2010.

C. Ghoroi, L. Jallo, L. Gurumurthy, U. Patel, D. To, L. Beach and R. N. Dave, "Improvement in flowability and bulk density of pharmaceutical powders thorough surface modification", AIChE Annual Meeting, Salt Lake City, UT, USA, November 7-12, 2010.

R. N. Dave, L. Beach, M. P. Mullarney and **C. Ghoroi**, "A novel continuous device for surface modification of cohesive pharmaceutical powders via dry coating of nano-particles for improved powder flow performance", AIChE Annual Meeting, Salt Lake City, UT, USA, November 7-12, 2010.

R. N. Dave, L. Gurumurthy, **C. Ghoroi** and D. Harris, "Flow improvement of pharmaceutical blends via surface modification of cohesive API", AIChE Annual Meeting, Salt Lake City, UT, USA November 7-12, 2010.

R. N. Dave, X. Han and **C. Ghoroi**, "Simultaneous micronization and surface modification as a tool to improve flow and dissolution of pharmaceutical powders", AIChE Annual Meeting, Salt Lake City, UT, USA, November 7-12, 2010.

L. Gurumurthy, **C. Ghoroi** and R. N. Dave, "Improving the flowability of cohesive pharmaceutical powders by dry particle coating", poster presented at 2010 NJPhAST (New Jersey Pharmaceutical Association for Science and Technology), competition, May 20, NJ, USA. Poster was Awarded Graduate Scholarships.

K. Parekh and R. V. Upadhyay, "Dynamic Magnetic Properties of Monodispersed Fe₃O₄ Nanomagnetic particles", ICMF12 held at Sendai, Japan, August 1-5, 2010.

R. V. Upadhyay, **K. Parekh**, A. Banerjee and K. Kumar, "Ac-Susceptibility Study in Rare Earth Substituted Magnetite Ferrofluids", ICMF12 held at Sendai, Japan, August 1-5, 2010.

L. Alm'asy, U. Gasser, V. Malik, **K. Parekh**, D. E. Creanga, J. Gubicza, L. V'ek'as, and P. Schurtenberger, "Comparison of various synthesis methods of magnetic nanoparticles, and of the various experimental methods used for their characterization", ICMF12 held at Sendai, Japan, August 1-5, 2010.

K. Cho, M.-E. Ju, **K. Parekh**, H.-S. Lee, "Enhanced thermal conductivity by Mn-Zn ferrite ferrofluids", ICMF12 held at Sendai, Japan, August 1-5, 2010.

D. D. J. Chandar and **M. Damodaran**, "Implementing a Partitioned Algorithm for Fluid-Structure Interaction of Flexible Flapping Wings within Overture", presented at the 10th Symposium on Overset Composite Grids and Solution Technology, NASA Ames Research Centre, Moffett Field, California, USA, September 20-23, 2010.

P. Thielmann, "The Hyena Wears Darkness: Stories as Teaching Tools." The Association for Commonwealth Literature and Language Studies Conference, Chail, India, September 15, 2010. She also chaired a session at the conference.

P. Thielmann, "Jonathan Sajiwandani's Imagined Means from Slavery to Happiness", 15th Triennial Conference of the Association for Commonwealth Literature and Language Studies (ACLALS), Nicosia, Cyprus, June 7, 2010.

S. Das*, "Expanded Analogues of Benzoporphyrins", National Conference on Frontiers in Chemical Sciences (FICS), IIT Guwahati, December 3-4, 2010.

S. Saini, "Role of efflux systems in regulating the concentration of cellular metabolic intermediates concentration and its impact on biofuel production", Grow Diesel Annual Conference, Delhi, (2010).

S. Saini, "Coordinated control of flagellar, needle, and fimbriae genes in Salmonella", Conference of Modeling Infectious Diseases, Chennai, (2010).

Y. Goyal*, presented a poster Biodiesel production from waste vegetable oil for Washington University Campus Vehicles via Skype at the 3rd International Symposium, Global Energy Future, St. Louis, Missouri, USA, October 1-4, 2010.

* Student publications