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Publications in referred journals

1. Manish Kumar, Kalyan Gayen, “Developments in Bio-butanol production: New insights” *Applied Energy* (2010), Accepted
2. Kalyan Gayen, Manish Kumar, Meghna Rajvanshi and K. V. Venkatesh, “Metabolic consequences of anaplerotic reactions of *Corynebacterium glutamicum* during growth on glucose and lactate through elementary mode”, *IJBB* (2010), Accepted
3. Jason E Shoemaker, Kalyan Gayen, Natàlia Garcia-Reyero, Edward J. Perkins, Daniel L. Villeneuve, Li Liu, Francis 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).
4. Kalyan Gayen and K. V. Venkatesh, “Quantification of cell size distribution as applied to the growth of *Corynebacterium glutamicum*”, *Microbiological Research* **163**, 586-593 (2008).
5. Kalyan Gayen and K.V. Venkatesh, “A phenomenological model to represent the kinetics of growth by *Corynebacterium glutamicum* for lysine production”, *Journal of industrial microbiology and biotechnology*, **34**, 363 - 372 (2007).
6. Kalyan Gayen, Manish Gupta and K. V. Venkatesh, “Elementary mode analysis to study the preculturing effect on the metabolic state of *Lactobacillus rhamnosus* during growth on mixed substrates” *In silico biology*, **7**, 0012 (2007).
7. Kalyan Gayen and K.V. Venkatesh, “Analysis of optimal phenotypic space using elementary modes as applied to *Corynebacterium glutamicum*”, *BMC Bioinformatics*, **7**, 445 (2006).
8. R. Agarwal, D. Prasad, S. Maity, K. Gayen and S. Ganguly, “Experimental measurement and model based inferencing of solubility of polyethylene in Xylene”, *J. Chem. Eng. of Japan*, **73**, 1427 – 1435 (2004).

Book chapters

1. Theresa Yuraszeck, Peter Chang, Kalyan Gayen, Eric Kwei, Henry Mirsky, and Francis J. Doyle III, “Methods for *In Silico* Biology: Model Construction and Analysis”, *Systems Biology in Drug Discovery and Development*, Edited by Daniel L. Young and Seth Michelson, John Wiley & Sons, Inc., 2010.
2. Ashok Pandey, Devesh Radhakrishnan, Meghna Rajvanshi, Kalyan Gayen & K. V. Venkatesh, “Optimization of bioprocesses using metabolic engineering”, *Bioprocess and Bioproducts*, Edited by Soumitra Biswas, Nirmala Kaushik and Ashok Pandey, AsiaTech Publishers, 2009
3. Kalyan Gayen and K.V. Venkatesh, “Evaluation of fluxes of elementary modes through linear programming: Applied to *Corynebacterium glutamicum*”. *Understanding and*

exploiting Systems Biology in Biomedicine and Bioprocesses, Editor: Arturo Manjon, 211-222, 2007.

Conference proceedings/Seminars

1. Manish Kumar and Kalyan Gayen, "Metabolic Network Analysis of Biobutanol Production Using *Clostridium acetobutylicum*", Chemcon, 2010 (accepted).
2. S. R Shah and Kalyan Gayen, "Manufacture of amino resins: Batch process to continuous process", Chemcon, 2010 (accepted)
3. Meghna Rajvanshi, Kalyan Gayen and KV Venkatesh, "Characterization of Heterogeneity in Phenotypic States of *Corynebacterium glutamicum*", *International Conference for Systems Biology (ICSB)*, Aug. 31 - Sept. 3, 2009, Stanford, California, USA
4. Kalyan Gayen, Jason E. Shoemaker, Natàlia G. Reyero Vinas, Edward Perkins, Francis J. Doyle III, "Network modeling of ovarian steroidogenesis for FHM and linking to the population level for risk assessment", *EPA Toxicological meeting*, 2009, Durham, USA.
5. Jason E. Shoemaker, Kalyan Gayen, Natàlia G. Reyero Vinas, Edward Perkins, Francis J. Doyle III, "Fathead Minnow Steroidogenesis- *In Vitro* Modeling and Experimentation Reveals Global Regulation of Sex Hormone Synthesis", *International conference on Systems biology*, 2008, Sweden.
6. Kalyan Gayen, Jason E. Shoemaker, Natàlia G. Reyero Vinas, Edward Perkins, Francis J. Doyle III, "Development and Analysis of a Signaling-Metabolic model for Ovarian Steroidogenesis", *EPA Toxicological meeting*, 2008, Duluth, USA.
7. Kalyan Gayen, "Prediction of phenotypic space and Heterogeneity in cell population using Elementary Modes" (Invited talk), 2007, IIT Guwahati, India.
8. Kalyan Gayen and K. V. Venkatesh, "Quantification of metabolic network through elementary modes", Research Scholar's Symposium, 2007, IIT Bombay, India.
9. Kalyan Gayen and K. V. Venkatesh "Evaluation of fluxes of elementary modes through linear programming: Applied to *Corynebacterium glutamicum*", *1st International Symposium on System Biology*, 2006, Murcia, Spain.
10. Kalyan Gayen and K. V. Venkatesh, "Evaluation of Phenotypic Space in Metabolic Networks Using Elementary Modes"(invited paper), *Computational insights into biological systems*, 2006, IISc Bangalore, India.
11. Kalyan Gayen and K. V. Venkatesh, "Metabolic network analysis for *Lactobacillus rhamnosus* using elementary modes", *6th European Symposium on Biochemical Engineering Science*, 2006, Salzburg, Austria.
12. Kalyan Gayen and K. V. Venkatesh, "Tracking the size distribution of *Corynebacterium glutamicum* by image analysis" (invited paper), *Chemcon*, 2004, IIT Delhi, India.
13. Kalyan Gayen and K. V. Venkatesh, "*In silico* metabolic network analysis through elementary modes: Applied to *Lactobacillus rhamnosus*", *Student Chemcon*, 2004, IIT Guwahati, India.
14. Sunil Kumar Maity, Kalyan Gayen, Sirshendu De and Saibal Ganguly, "Modeling and Simulation of Solid-Liquid Equilibrium: Model Validation Using Solubility Data and Sensitivity Study for Polyethylene System", *Conference of Research Scholar and Young Scientist*, 2004, IIT Kharagpur.