Centre for Biosystems Science and Engineering

SEMINAR

at 4:00 PM on October 19, 2015
Seminar Hall, MRDG, Biological Sciences

Looking ahead: From endocrine physiology towards bioengineered artificial pancreas

Pranay Goel

Assistant Professor, IISER Pune

Recent advances have brought us ever closer to the goals of bioengineering artificial pancreas. I will describe some of our work studying the physiology of insulin secretion and glucose homeostasis that could have a bearing on such questions. I will first discuss models of glucose-stimulated insulin secretion from the cells of the islets of Langerhans. Next, I will discuss cell-cell communication and our current views on the role of synchronization in the pulsatility of insulin secretion. Finally, I will describe a new theory of diabetogenesis that challenges conventional wisdom; insights from this model may improve our understanding of the long-term management of energy balance.

About the speaker:

Pranay Goel is Assistant Professor of Mathematics and Biology at the Indian Institute of Science Education and Research Pune. Dr. Goel has a Bachelors (B. Tech.) in Engineering Physics from IIT Bombay. He is a Ph.D. in Physics and Astronomy from the University of Pittsburgh and has held research positions at The Ohio State University and the U.S. National Institutes of Health. His research interests include mathematical biology and nonlinear dynamical systems. His recent work is centred on type 2 diabetes, especially models of insulin secretion and the role of oxidative stress in pathogenesis.