



**Centre for Biosystems Science and Engineering**

# **S E M I N A R**

**at 12.00 PM on December 15, 2015  
Seminar Hall, MRDG, Biological Sciences**

## **Ionic Bases of Arrhythmias in AF and Diabetes**

**Sandeep V Pandit**

**Center for Arrhythmia Research,  
University of Michigan, Ann Arbor, MI**

In the first part of my talk, I will present results from both experimental and theoretical studies that we have conducted over the last decade, examining the ionic mechanisms underlying Atrial Fibrillation (AF). AF is the most common cardiac arrhythmia seen in the clinic, and increases the risk for stroke and heart failure. Recent studies indicate that the electrical activity during AF is not always chaotic but can be rather well organized, due to a small number of spiral waves, which are thought to sustain the arrhythmia. Our research has shed light on the key ionic determinants of these spirals, which has important implications for the development of new antiarrhythmic drugs for AF. In the second part of my talk, I will present results from recent experimental studies that we have conducted examining the ionic bases of alterations in cardiac electrophysiology in the diabetic heart. This research is important, since diabetes is well-known to increase the risk for ventricular arrhythmias and sudden cardiac death; however, the underlying mechanisms remain poorly understood. I will conclude my talk by touching very briefly upon plans for future research.

### **About the speaker:**

Dr. Pandit obtained his Bachelor's and Master's degrees in Electronics and Telecommunications Engineering from India, in 1993 and 1996 from the Government College of Engineering in Pune, and from VJTI Mumbai, respectively. He received a Ph.D. degree in Biomedical Engineering from the joint program between the University of Memphis, and the University of Tennessee, Memphis, in 2002. He completed his post-doctoral studies in cardiac electrophysiology at SUNY Upstate Medical University, Syracuse, in 2007. Since 2008, he is working as a research assistant professor in the Department of Cardiology-Internal Medicine at the University of Michigan in Ann Arbor.