2nd **Prof. R. Narasimhan Memorial Lecture**

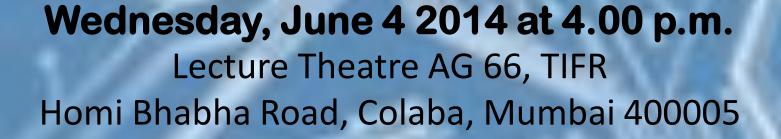## Testing, Debugging, and Precision-tuning of Large-scale Parallel and Floating-point Programs

Prof. Koushik Sen, UC, Berkeley

Testing and debugging scientific applications is a difficult task, in particular for large-scale parallel programs and floating-point programs. Parallel programs often exhibit incorrect behaviors due to unintended interference among multiple threads. Such concurrency bugs are often difficult to pinpoint because they typically happen under very specific thread interleavings. Floating-point programs are difficult to write, test, and debug because such programs can produce incorrect results due a variety of numerical errors that can happen during execution. In this talk, Prof Koushik will describe a couple of program analysis and debugging techniques to assess the correctness of parallel programs written using hybrid parallelism and floating-point datatypes.

Prof. Koushik Sen is an Associate Professor in the Department of Electrical Engineering and Computer Sciences at the University of California, Berkeley. His research interest lies in Software Engineering, Programming Languages, and Formal Methods, and is best known for his work on "DART: Directed Automated Random Testing" and concolic testing. He has been bestowed with many awards including the NSF CAREER Award in 2008, Haifa Verification Conference (HVC) Award in 2009, IFIP TC2 Manfred Paul Award for Excellence in Software: Theory and Practice in 2010, and Sloan Foundation Fellowship in 2011, to mention a few.

Wednesday, June 4 2014 at 4.00 p.m.
Lecture Theatre AG 66, TIFR
Homi Bhabha Road, Colaba, Mumbai 400005