



# WPI HAROLD J GAY LECTURE SERIES

## PDEs and Fractals

### Silvio Micali

Ford Professor of Engineering, MIT

### Proof, Secrets, and Computation

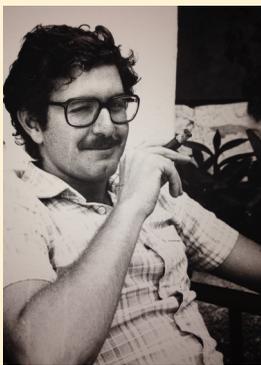
Friday, Nov. 15, 2013

3:15pm, Salisbury Labs 411



Geometry with its applications has been at the heart of the development of partial differential equations and boundary value problems since the very beginning. In physics, biology, economics, and other applied fields, a variety of new problems are now emerging that display unusual geometrical, analytical and scaling features, possibly of fractal type. The objective of these lectures is to acquire the view of outstanding mathematicians on the subject of differential equations and fractals, and their developments and applications, in a broad perspective encompassing both classical highlights and contemporary trends.

**ABSTRACT** We show how Theory of Computation has revolutionized our millenary notion of a proof, revealing its unexpected applications to our new digital world. In particular, we shall demonstrate how interaction can make proofs much easier to verify, dramatically limit the amount of knowledge released, and yield the most secure identification schemes to date.



Silvio Micali has received his Laurea in Mathematics from the University of Rome, and his PhD in Computer Science from the University of California at Berkeley. Since 1983 he has been on the MIT faculty, in the Electrical

Engineering and Computer Science Department, where he is Ford Professor of Engineering. His research interests are cryptography, zero knowledge, pseudo-random generation, secure protocols, and mechanism design. He has received the Turing Award (in computer science), the Gödel Prize (in theoretical computer science), and the RSA prize (in cryptography). He is a member of the National Academy of Sciences, the National Academy of Engineering, and the American Academy of Arts and Sciences.



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Refreshments available before the lecture in Salisbury Labs 411

Participation of faculty and students is most welcome

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