

You are cordially invited to a talk in the **Edmond J. Safra Center for Bioinformatics Distinguished Speaker Series**.

The speaker is **Prof. James Galagan**, Departments of Biomedical Engineering and Microbiology; National Emerging Infectious Diseases Laboratory, Boston University.

Title: "Mapping and Modeling of Microbial Cellular Networks"

Time: Wednesday, **July 19, 2017**, at **11:15** sharp (refreshments from 11:00)

Place: Schreiber 309, School of Computer Science

Host: Prof. Ron Shamir, rshamir@tau.ac.il, School of Computer Science, TAU

Abstract: Genomic techniques including CHIP-Seq and RNA-Seq have led to dramatic advances in the mapping of gene regulatory networks in eukaryotes, but they have only recently been applied to bacteria. Our group has performed extensive regulatory network mapping in *M. tuberculosis*, *E. coli*, and several other bacteria. The data have revealed an unexpected diversity of transcription factor (TF) binding sites. The regulatory networks arising from these data appear more complex and interconnected than previously expected, implying that many processes previously considered in isolation can only be fully understood in the context of the system as a whole. This necessitates developing a comprehensive understanding of the dynamic behavior of cellular networks.

I will present results from our ongoing work to comprehensively map microbial regulatory networks, to develop algorithms for the analysis of the resulting data, to develop computational models of gene regulatory networks, to link these models to metabolism, and to use these models to make testable predictions about molecular behavior and phenotypic outcomes relevant to a range of problems, including bacterial pathogenesis and drug resistance.