BIOENGINEERING AND BIOMEDICAL ENGINEERING RESEARCH SEMINAR

HIGH-RESOLUTION MODELING IN SYSTEMS BIOLOGY

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Systems biology is a powerful paradigm in biological sciences where the attention is shifted from identifying individual biomolecules inside cells to understanding how complex networks of interactions among these biomolecules lead to the collective behavior of the entire cellular system. Despite tremendous successes, current systems biology is limited in spatial and temporal resolutions by treating biomolecules as nodes and biomolecular interactions as edges in a highly coarse-grained graph-theoretical representation of the cellular circuitry. Here, I will present our recent work on developing methodologies for constructing atomic-resolution, genome-scale models of nodes and edges within protein-protein interaction networks. In addition, I will show that such high-resolution systems biology modeling approach provides new insights into network complexity and evolution, species interactions, and disease biology

NOVEMBER 27
1:00-2:00 PM
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