



## Department of Civil Engineering Seminar

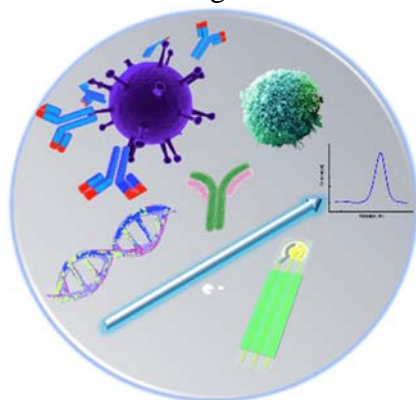
### Design of Biosensing Strategies for Universal Electrochemical Biosensor through Biological Immune System toward Point-of-Care Diagnostic

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**Friday October 18, 2019, 12:45-1:45PM @ Bingham 103**  
**Lunch and discussion at 12:00PM at Bingham 102 (Vose Room)**

**Abstract:** Advances in the understanding of molecular pathways on the regulation of diseases promote the development of point-of-care diagnosis. The information from broad assessments of biomolecular signatures from nucleic acids, proteins, and cells during disease progression is



utilized as a general standard to quantitatively evaluate the severity of the disease. The existence of certain biomolecules in human fluids has been recognized as the confirmation of corresponding diseases, such as cancers, neurodegenerative disorders. In this talk, I will specifically discuss about the design of biosensing strategies at the bio-electrode interface to achieve universal electrochemical biosensor for the detection of cancers and neuro-degenerative disorders through a single droplet of human blood. Recent developments on applications of nature evolved immune systems for biosensing development, such as antibody-antigen, protein binding nucleic acid, CRISPR system, will be discussed.

**Biosketch:** Yifan Dai obtains his B.S from Department of Chemical and Biomolecular Engineering in Case Western Reserve University. He is currently a senior PhD candidate in the Department of Chemical and Biomolecular Engineering. His works focus on the development of biosensing strategies for the electrochemical biosensing applications.