## Life Sciences Seminar

# After the Resolution Revolution Quo Vadis, Cryo-EM?

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Host: Leonid Sazanov

In the past five years, single-particle electron cryo-microscopy (cryo-EM) has evolved into a routine technique in structural biology that delivers high-resolution images of molecules and their assemblies, on par with X-ray crystallography. Unlike crystallography, single-particle cryo-EM can also visualize many different conformational states present in a single sample, providing snapshots of the functional cycle of the imaged molecules and assemblies. I will provide examples of what can be done today and discus challenges for the future.Most molecules and assemblies function within the larger context of a cell, which can be visualized by electron tomography (ET). Despite groundbreaking development of sample preparation and image processing techniques, cryo-ET is still limited to about 2 nm resolution unless averaging techniques can be applied. At this resolution, it is difficult to infer the chemical interactions between the molecules that underlie cellular mechanisms. I will describe a cryo-EM approach that allows the precise placement of molecules of known structure into the context of cellular environments, thereby addressing one of the current limitations of tomography.

**Monday, March 19, 2018 10:00am - 11:00am**
Big Seminar room Ground floor / Office Bldg West (I21.EG.101)

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