

**5<sup>th</sup> Annual Winter Session**  
**Interdisciplinary Quantitative Biology Boot Camp on Cryo-Electron Tomography**

Monday January 8 2018			
10:00am	- Welcome – Stephen Burley, Rutgers University; Gail Ferstandig Arnold, Rutgers University	1:30pm	- Meet ‘n Greet; Career Byte: Being Organized, Making Business Cards – Gail Ferstandig Arnold
10:20am	- Introduction to Cryo-EM/ET, Single Particle vs Tomography –Arek Kulczyk, Rutgers University	2:15pm	- Group Organization Meeting
11:00am	- Coffee Break	2:45pm	- Sample Preparation Hands-on Demonstration
11:20am	- Tomography Applications in Cell Biology – Jeffrey Lengyel, ThermoFisher Scientific		o Plunge Freezing – Jason Kaelber
11:50am	- Sample Prep for Cellular Tomography – Wei Dai, Rutgers University		o Plating Cells on EM Grids – Wei Dai, Paul Castellano, Rutgers University
12:30pm	- Lunch (With group)		o Structural Visualization Using Chimera, Part I – Brian Hudson, Rutgers University
Tuesday January 9 2018			
10:00am	- <i>In situ</i> Structures of Molecular Complexes by Cryo-electron Tomography – Keynote Speaker – Peijun Zhang, University of Oxford, Diamond Light Source	1:30pm	- Career Byte: Using LinkedIn and ORCID – Gail Ferstandig Arnold
11:00am	- Coffee Break	2:00pm	- Group Discussion
11:20am	- Correlative Light Electron Microscopy (CLEM) Principles – Louise Bertrand, Leica Microsystems	2:30pm	- Hands-on Demonstration
11:50am	- Fundamental Challenges in Biological Tomography – Jason Kaelber, Rutgers University		o Correlative Light Electron Microscopy demo – Louise Bertrand
	o Dose Limitation		o Tomography data collection on the Talos Arctica Microscope – Jason Kaelber
	o Contrast – Phase Plate		o Structural Visualization Using Chimera, Part II – Brian Hudson
	o Missing Wedge Artifact	4:45pm	- Jeopardy for Scientists
12:30pm	- Lunch (With group)		
Wednesday January 10 2018			
10:00am	- Topic TBD – Shigeki Watanabe, Johns Hopkins University School of Medicine	1:30pm	- Group Discussion
11:00am	- Coffee Break	2:30pm	- Tilt Series Alignment and Reconstruction: IMOD Tutorial – Wei Dai and Jason Kaelber
11:20am	- Gatan: The Direct Electron Detector		
11:50am	- Cadherin-Liposome Assemblies Visualized by CryoET – Julia Brasch, Columbia University		
12:30pm	- Lunch (Independent)		
Thursday January 11 2018			
10:00am	- Topic TBD - Jun Liu, Yale University School of Medicine	1:30pm	- Group Discussion
11:00am	- Coffee Break	2:10pm	- Subtomogram Averaging Tutorial: Dynamo – Alex Noble
11:20am	- Tomography for Everyone! Fiducial-less Alignment for All Applications – Alex Noble, New York Structural Biology Center	5:15pm	- Molecular Origami
11:50am	- Subtomogram Averaging – Jason Kaelber		
12:30pm	- Lunch (Independent)		
Friday January 12 2018			
10:00am	- Helium Ion Microscopy – Slava Manichev, Rutgers University	2:00pm	- Tutorial: Data Annotation and Segmentation: Muyuan Chen, Baylor College of Medicine
11:00am	- JEOL Microscopes for Biological Applications – Jaap Brink, JEOL U.S.A.	4:00pm	- The Electron Microscopy Data Bank (EMDB) – Cathy Lawson, Rutgers University
11:30am	- Coffee Break	4:40pm	- Conclusion – Stephen Burley, Gail Ferstandig Arnold
11:45am	- Group Presentation		
1:00pm	- Lunch (With group)		