

NCCAT SINGLE-PARTICLE ANALYSIS SHORT COURSE

MARCH 2-6, 2020 NEW YORK, USA

DAY 1: MONDAY, MARCH 2, 2020

09:00 – 09:30	Registration and Welcome – SEMC conference room
09:50 – 10:00	Opening – NYSBC conference room
10:00 – 11:15	Keynote / Lecture 1 – NYSBC conference room <i>Intro and overview of SPA</i> Joachim Frank (Columbia University)
11:15 – 11:30	Break
11:30 – 12:15	Roundtable 1 – SEMC conference room <i>Introductions and course overview</i> Short course attendees
12:15 – 13:30	Lunch
13:30 – 14:15	Lecture 2 – SEMC conference room <i>cryoVR for sample preparation</i> Brenda Gonzalez & Jiahui Dong (Purdue University)
14:15 – 14:30	Break
14:30 – 17:00	Practical 1 – SEMC conference room <i>Support films and grids</i> Practical 2 – SEMC conference room <i>Plunge freezers and Chameleon</i> SEMC/NCCAT Staff

DAY 2: TUESDAY, MARCH 3, 2020

09:00 – 09:30	Registration/Information desk – SEMC conference room
09:45 – 10:45	Lecture 3 – NYSBC conference room <i>Microscopes and tools of the trade</i> SEMC/NCCAT Staff
10:45 – 11:00	Break
11:00 – 12:00	Roundtable 2 – SEMC conference room <i>cryoEM Facility building</i> SEMC/NCCAT Staff
12:00 – 13:30	Lunch

13:30 – 17:00	Practical 3 – SEMC conference room <i>TEM microscopes</i> SEMC/NCCAT Staff
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DAY 3: WEDNESDAY, MARCH 4, 2020

09:00 – 09:30	Registration/Information desk – SEMC conference room
09:45 – 10:35	Lecture 4 – NYSBC conference room Algorithms and foundational math PartI: <i>derivation/explanation of the CTF, FTs.</i>
10:40 – 11:30	Algorithms and foundational math PartII: <i>reconstruction, classification, maximum likelihood.</i> Fred Sigworth (Yale University)
11:30 – 11:45	Break
11:45 – 12:30	Lecture 5 – NYSBC conference room <i>Data Analysis and reconstruction workflow</i> Amedee des Georges (ASRC/CUNY)
12:30 – 13:15	Lunch & Roundtable 3 – NYSBC conference room <i>Current algorithms to deal with SPA reconstruction</i> Fred Sigworth, Amedee des Georges & others
13:15 – 13:30	Group photo
13:30 – 17:00	Practical 4 – SEMC conference room <i>CryoEM on Demand (processing in the cloud using AWS)</i>
13:30 – 17:00 <i>by appointment</i>	Practical 3B – Krios control room <i>TEM microscopes (continued) - Krios operations</i> SEMC/NCCAT Staff

DAY 4: THURSDAY, MARCH 5, 2020

09:00 – 09:30	Registration/Information desk – SEMC conference room
09:45 – 10:45	Lecture 6 – NYSBC conference room <i>Interpretation and Limitations of SPA</i> Rich Hite (Memorial Sloan Kettering Cancer Center)
10:45 – 11:45	Lecture 7 – NYSBC conference room <i>Validation Methods</i> Tom Walz (Rockefeller University)
11:45 – 12:15	Roundtable 4 – NYSBC conference room <i>EM challenges and new frontiers</i> Rich Hite, Tom Walz & others

12:15 – 13:30	Lunch
	Practical 4B – SEMC conference room <i>CryoEM on Demand (wrap-up)</i>
13:30 – 15:45	mini-roundtable: <i>Results, resolution and EM maps</i> SEMC/NCCAT Staff
13:30 – 17:00 <i>by appointment</i>	Practical 3C – Krios control room <i>TEM microscopes (continued) - Krios operations</i> <i>Time reserved for data collection of select student projects</i>
15:45 – 17:00	Lecture 8 – SEMC conference room <i>EMDataResource: Structure Data Archiving, Validation Challenges</i> Cathy Lawson (Rutgers University)
18:00 – 20:00	Reception <i>Group dinner</i>

DAY 5: FRIDAY, MARCH 6, 2020

09:00 – 17:00	Registration/Information desk – SEMC conference room <i>room available all day except for practicals</i>
09:45 – 10:45	Lecture 9 – NYSBC conference room <i>Moderate resolution interpretation</i> Gira Bhabha & Damien Ekiert (New York University)
10:45 – 11:45	Lecture 7 – NYSBC conference room <i>Fitting Atomic Models</i> Oli Clarke (Columbia University)
11:45 – 12:15	Roundtable 4 – NYSBC conference room <i>Making biological conclusions from cryoEM reconstructions.</i> Gira Bhabha, Damien Ekiert, Oli Clarke & others
12:15 – 12:30	Lunch (pizza lunch) – SEMC conference room <i>working lunch through practical</i>
12:30 – 15:45	Practical 5 – SEMC conference room <i>Coot and model building</i> Oli Clarke & SEMC Staff
13:45 – 15:45 <i>by appointment</i>	Practical 3D – Krios control room <i>TEM microscopes (continued) - Krios operations</i> <i>Time reserved for data collection of select student projects</i> SEMC/NCCAT Staff
15:45 – 16:15	Closing and farewell