

# S2C2 cryoEM Image Processing Workshop June 10-12, 2020

## Agenda

Wednesday, June 10, 2020

Time	Title	Speaker
8:30 AM	Fundamental principles in 3D reconstruction in electron microscopy (Attendance by All)	<ul style="list-style-type: none"> <li>David DeRosier</li> </ul>
10:30 AM	cryoSPARC tutorial (Attendance by All) <ul style="list-style-type: none"> <li>Basic techniques for the standard processing pipeline, working with T20S proteasome data to reach ~2.8 Å reconstruction tutorial</li> <li>Explanation and theory information about motion correction algorithms, CTF estimation</li> <li>CryoSPARC UI details, parameter choices, project and instance management</li> </ul>	<ul style="list-style-type: none"> <li>Ali Punjani</li> <li>Saara Virani</li> <li>Suhail Dawood</li> <li>Stephan Arulthasan</li> </ul>
12:00 PM	Lunch break ( <i>if needed computing issues</i> )	
1:00 PM	cryoSPARC tutorial (cont'd)(Attendance by All)	<ul style="list-style-type: none"> <li>Ali Punjani</li> <li>Saara Virani</li> <li>Suhail Dawood</li> <li>Stephan Arulthasan</li> </ul>
3:30 PM	Break	
3:50 PM	Interactiive time (Practical attendees only)	

Thursday, June 11, 2020 (CryoSPARC tutorial runs ~all day)

Time	Title	Speaker
9:00 AM	Processing using shared tutorial data (movies)(Attendance by All) <ul style="list-style-type: none"> <li>Motion correction &amp; CTF estimation interpretation</li> <li>Raw data curation</li> <li>Particle picking methods</li> </ul>	<ul style="list-style-type: none"> <li>Ali Punjani</li> </ul>
10:30 AM	Break	
10:45 AM	<ul style="list-style-type: none"> <li>Custom/Advanced 2D classification for curating particles</li> <li>Discrete heterogeneity using multi-class ab initio reconstruction and heterogeneous refinement (Attendance by All)</li> </ul>	<ul style="list-style-type: none"> <li>Ali Punjani</li> </ul>
12:00 PM	Lunch Break	
1:00 PM	Processing using shared tutorial data (particle stacks) (Attendance by All)	<ul style="list-style-type: none"> <li>Ali Punjani</li> </ul>

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	<ul style="list-style-type: none"> <li>• Homogeneous refinement to high resolution</li> <li>• Diagnosing orientation distributions</li> <li>• CTF refinement and aberration correction</li> </ul>	
<b>2:30 PM</b>	Break	
<b>2:45 PM</b>	Advanced Topics (Attendance by All) <ul style="list-style-type: none"> <li>• Masking and local refinement</li> <li>• Non-uniform refinement</li> <li>• Local resolution estimation and filtering</li> <li>• Advanced heterogeneity classification strategies</li> <li>• Flexible and continuous heterogeneity using 3D variability analysis</li> </ul>	<ul style="list-style-type: none"> <li>• Ali Punjani</li> </ul>
4:00 PM	Interactive Time (Practical attendees only)	

### Friday, June 12, 2020

Time	Title	Speaker
<b>9:00 AM</b>	CryoEM map resolution assessment, validation, visualization and segmentation (Attendance by All)	<ul style="list-style-type: none"> <li>• Greg Pintilie</li> </ul>
<b>10:30 AM</b>	CryoEM map deposition, validation report and retrieval (Attendance by All)	<ul style="list-style-type: none"> <li>• Cathy Lawson</li> </ul>
<b>11:45 AM</b>	Lunch break	
<b>1:00 PM</b>	Selected registered participant presentation and discussion of their projects (Practical Attendees only)	