

Wellcome Trust Programme for Cellular Structural Biology

Electron Cryo Microscopy in Structural Biology - Course

21st November – 25th of November, 2016

Organisers: Prof Kay Grünewald and Dr Tzviya Zeev-Ben-Mordehai (STRUBI/OPIC)

Please report to the Wellcome Trust Centre for Human Genetics Reception, Old Road Campus, Headington.
All lectures in the Division of Structural Biology meeting room.

Day 1 – Monday, Nov 21st

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| 10:00 – 10:30 | Lecture 1: CryoEM introduction, news and views – Kay Grünewald |
| 10:30 – 11:15 | Lecture 2: The electron microscope: physics, optics, detectors – Mark Langridge |
| 11:20 – 12:15 | Lecture 3: Sample preparation – Joanne Lo |
| ----- LUNCH AND Q&A ----- | |
| 13:00 – 16:00 | Practical 1 (hands on): Negative staining and room temperature imaging (T12) Mark Langridge, Joanne Lo, Dimple Karia |
| | Practical 2 (hands on): Plunge freezing and cryo imaging (F30) Ben Vollmer, Lindsay Baker, Cornelia Cazey |

Day 2 – Tuesday, Nov 22nd

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| 10:00 – 10:45 | Lecture 4: Image formation – Lindsay Baker |
| 11:00 – 11:45 | Lecture 5: Introduction to image processing – Juha Huiskonen |
| ----- LUNCH AND Q&A ----- | |
| 13:00 – 16:00 | Practical 1 (hands on): Negative staining and room temperature imaging (T12) Mark Langridge, Joanne Lo, Dimple Karia |
| | Practical 2 (hands on): Plunge freezing and cryo imaging (F30) Ben Vollmer, Lindsay Baker, Cornelia Cazey |

Day 3 – Wednesday, Nov 23rd

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| 10:00 – 10:45 | Lecture 6: Single particle averaging – Juha Huiskonen |
| 11:00 – 11:45 | Lecture 7: Introduction to tomography – Tzviya Zeev-Ben-Mordehai |
| ----- LUNCH AND Q&A ----- | |
| 13:00 – 15:00 | Practical 3 (hands on): Single particle averaging (STRUBI meeting room) Juha Huiskonen, Abhay Kotecha, Michael Grange |
| 15:00 – 16:00 | Practical 4 (Demo): Visualisation software (STRUBI meeting room) Daven Vasishtan |

Day 4 – Thursday, Nov 24th

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| 10:00 – 10:45 | Lecture 8: Subtomogram averaging – Daven Vasishtan |
| 11:00 – 11:45 | Lecture 9: Correlative & integrative imaging – Rainer Kaufmann |
| ----- LUNCH AND Q&A ----- | |
| 13:00 – 16:00 | Practical 5 (Demo): Tomographic data acquisition on 'Polaris', direct electron detector Lindsay Baker, Tzviya Zeev-Ben-Mordehai |
| | Practical 6 (Demo): FIB milling Christina Heroven, Valerie Mordhorst |
| | Practical 7 (hands on): Tomographic reconstruction (STRUBI meeting room) Ben Vollmer, Sai Li, Vojta Pražák |

Day 5 – Friday, Nov 25th

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| 10:00 – 11:30 | Test cases from STRUBI |
| 11:30 – 12:00 | Conclusions and wrap-up |