
Monday 14 May 2018

17:45 - 19:15 **Arrival / Registration with light refreshments**

ATC Reception and Foyer

19:15 - 19:30 **Opening remarks**

ATC Auditorium

19:30 - 20:30 **Keynote lecture: Anthony Hyman**

Chair: Clifford P. Brangwynne, Princeton University

ATC Auditorium

Biomolecular condensates: Organizers of cellular biochemistry 1

Anthony Hyman

*Max Planck Institute of Molecular Cell Biology and Genetics,
Germany*

20:30 - 22:30 **Welcome Reception and
Poster Session I (odd numbers)**

ATC Foyer and Helices

Tuesday 15 May 2018

08:55 - 12:00	Session 1: The pathological face of phase separation Chair: Stella M. Hurtley, Senior Editor Science ATC Auditorium	
08:55 - 09:00	Introduction by session chair ATC Auditorium	
09:00 - 09:30	Physiological and Pathological Phase Separation of FUS is Regulated by Methylation of Cooperative Cross-Domain Cation-Pi Interactions and interaction with TNPO1 Peter St George-Hyslop <i>University of Cambridge, United Kingdom</i>	2
09:30 - 10:00	EMBO Young Investigator Lecture: The role of cellular stress in the initiation of TDP-43 and FUS pathology Magdalini Polymenidou <i>University of Zurich, Switzerland</i>	3
10:00 - 10:12	Reduction of ataxin-2 extends lifespan and rescues ALS-associated pathology in TDP-43 mice Lindsay Becker <i>Stanford University, United States of America</i>	4
10:12 - 10:24	Cancer mutations of the tumor suppressor SPOP disrupt the formation of enzymatically active, phase-separated compartments Jill Bouchard <i>St. Jude Children's Research Hospital, United States of America</i>	5
10:24 - 10:36	Phase separation of FUS is suppressed by its nuclear import receptor and arginine methylation Mario Hofweber <i>LMU Munich, Germany</i>	6
10:36 - 11:00	Coffee Break & Meet the Speakers / Editors ATC Foyer	

11:00 - 11:12	Profilin binding modulates aggregation and phase separation of huntingtin N-terminal fragments via polyphasic linkage Kiersten Ruff <i>Washington University in St. Louis, United States of America</i>	7
11:12 - 11:24	Evidence for a synergistic interaction between low complexity domains in FUS toxicity Ludo Van Den Bosch <i>KU Leuven & VIB, Belgium</i>	8
11:24 - 11:36	Tdrd6a regulates the aggregation of Buc into functional subcellular compartments that drive germ cell specification Elke Roovers <i>Institute of Molecular Biology (IMB), Germany</i>	9
11:36 - 11:48	Super-enhancers form phase-separated condensates Benjamin Sabari <i>Whitehead Institute for Biomedical Research, United States of America</i>	10
11:48 - 12:00	Phase separated nuclear oskar promotes cell division in drosophila primordial germ cells Tatjana Trcek <i>HHMI, Skirball Institute, NYU, United States of America</i>	11
12:00 - 13:30	Lunch ATC Foyer	
13:30 - 16:30	Session 2: Molecular function of phase separation Chair: Sadaf Shadan, Senior Editor Nature ATC Auditorium	
13:30 - 13:35	Introduction by session chair ATC Auditorium	

13:35 - 14:05	Gel or die: phase separation as a stress survival strategy	12
	Simon Alberti <i>Max Planck Institute of Molecular Cell Biology and Genetics, Germany</i>	
14:05 - 14:35	Kinase-controlled phase transition of membrane-less organelles during mitosis	13
	Lucas Pelkmans <i>University of Zurich, Switzerland</i>	
14:35 - 15:05	HSPB2 forms nuclear compartments that affect lamin A and compromise nuclear function	14
	Serena Carra <i>University of Modena and Reggio Emilia, Italy</i>	
15:05 - 15:30	Coffee Break & Meet the Speakers	
	ATC Foyer	
15:30 - 15:42	A microfluidic device to study rapid phase transitions of disordered nucleoporins	15
	Giorgia Celetti <i>EMBL Heidelberg, Germany</i>	
15:42 - 15:54	How protein and mRNA phase separation redirect translational activity during stress	16
	David Drummond <i>The University of Chicago, United States of America</i>	
15:54 - 16:06	Heat-induced phase separation as an adaptive switch that supports organismal survival	17
	Christiane Iserman <i>Max Planck Institute of Molecular Cell Biology and Genetics, Germany</i>	
16:06 - 16:18	The mTOR-S6 Kinase Pathway Promotes Stress Granule Assembly	18
	Aristeidis Sfakianos <i>University of Manchester, United Kingdom</i>	

- 16:18 - 16:30 **Cytoplasmic actomyosin drives spatial patterning of yolk granules** 19
Shayan Shamipour
Institute of Science and Technology, Austria
- 16:30 - 18:30 **Poster Session II (even numbers)**
ATC Helices
- 18:30 - 20:00 **Dinner**
EMBL Canteen
- 20:00 - 21:30 **After-dinner drinks**
ATC Foyer

Wednesday 16 May 2018

08:55 - 12:00	Session 3: Phase separation, a polymer physics perspective Chair: Edward Lemke, EMBL Heidelberg, IMB & JGU Mainz ATC Auditorium	
08:55 - 09:00	Introduction by session chair ATC Auditorium	
09:00 - 09:30	A stickers and spacers framework for phase transitions of multivalent proteins Rohit Pappu <i>Washington University in St. Louis, United States of America</i>	20
09:30 - 10:00	Universal features in phase separation: Implications for stress granule formation Chiu Fan Lee <i>Imperial College London, United Kingdom</i>	21
10:00 - 10:30	Phase separation in active systems Frank Jülicher <i>Max Planck Institute for the Physics of Complex Systems, Germany</i>	22
10:30 - 11:00	Coffee Break & Meet the Speakers / Editors ATC Foyer	
11:00 - 11:12	Quantifying nucleation in vivo reveals the physical basis of prion-like phase behavior Randal Halfmann <i>Stowers Institute for Medical Research, United States of America</i>	23
11:12 - 11:24	Liquid-phase demixing in polymer mixtures: fundamental principles and generality Jasper Michels <i>Max Planck Institute for Polymer Research, Germany</i>	24

11:24 - 11:36	Universal glass-forming behavior of in vitro and living cytoplasm, -its similarity to droplet suspensions?- Daisuke Mizuno <i>Kyushu University, Japan</i>	25
11:36 - 11:48	Origins of Life Chemistries in RNA-Containing Membraneless Compartments Raghav Poudyal <i>Pennsylvania State University, United States of America</i>	26
11:48 - 12:00	A short scaffold protein-fragment (4%) maintains liquidity in phase-separated condensates Shambaditya Saha <i>Max Planck Institute of Molecular Cell Biology and Genetics, Germany</i>	27
12:00 - 12:30	Packed lunch ATC Foyer	
12:30 - 17:00	Free afternoon / sightseeing (Buses to Heidelberg's Old Town and funicular railway station for optional castle visits – see bus schedule)	
17:00 - 19:00	Session 4: Phase separation in developmental biology and non-linear signaling Chair: Lara Szewczak, Senior Editor Cell ATC Auditorium	
17:00 - 17:05	Introduction by session chair ATC Auditorium	
17:05 - 17:35	RNA granules: liquid or active condensates? Geraldine Seydoux <i>Johns Hopkins University School of Medicine, United States of America</i>	28
17:35 - 18:05	The Dishevelled paradigm – signalosome assembly in animals and plants Mariann Bienz <i>MRC Laboratory of Molecular Biology, United Kingdom</i>	29

18:05 - 18:35	Stress assemblies in Drosophila by nutrient deprivation Catherine Rabouille <i>Hubrecht Institute, The Netherlands</i>	30
18:35 - 18:47	Protein phase separation provides long-term memory of transient spatial stimuli Elliot Dine <i>Princeton University, United States of America</i>	31
18:47 - 19:00	Co-assembly of gel and liquid phases in P granules Andrea Putnam <i>Johns Hopkins University School of Medicine, United States of America</i>	32
19:00 - 19:30	Pre-dinner drinks & Meet the Speakers ATC Foyer	
19:30 - 21:00	Dinner EMBL Canteen	
21:00 - 22:30	After-dinner drinks ATC Rooftop Lounge	

Thursday 17 May 2018

08:55 - 12:12	Session 5: Liquid compartments in the cell Chair: Simon Alberti, Max Planck Institute of Molecular Cell Biology and Genetics ATC Auditorium	
08:55 - 09:00	Introduction by session chair ATC Auditorium	
09:00 - 09:30	RNA structure and specificity in cellular phase separation Amy S. Gladfelter <i>University of North Carolina at Chapel Hill, United States of America</i>	33
09:30 - 10:00	Mechanisms of heterochromatin assembly and function Geeta Narlikar <i>University of California, San Francisco, United States of America</i>	34
10:00 - 10:12	Regulation of Ki-67's surfactant properties Sara Cuylen-Haering <i>EMBL Heidelberg, Germany</i>	35
10:12 - 10:24	Relating Dilute Phase to Condensed Phase Through Coarse-Grained Simulations Gregory Dignon <i>Lehigh University, United States of America</i>	36
10:24 - 11:00	Coffee Break & Meet the Speakers / Editors ATC Foyer	
11:00 - 11:12	Using light to study localized liquid-liquid phase separation in living cells Dan Bracha <i>Princeton University, United States of America</i>	37

11:12 - 11:24	Mediator and Pol II form diffraction-sized condensates co-dependent on active transcription in living stem cells	38
	Jan Spille <i>MIT, United States of America</i>	
11:24 - 11:36	Skin stem cells attain barrier competency through a dramatic event of liquid phase separation	39
	Felipe Garcia Quiroz <i>The Rockefeller University, United States of America</i>	
11:36 - 11:48	Structure and biogenesis of the eukaryotic CO₂-concentrating organelle, the pyrenoid	40
	Martin Jonikas <i>Princeton University, United States of America</i>	
11:48 - 12:00	Biomolecular condensation of the microtubule nucleation effector TPX2 enhances reaction kinetics in vivo	41
	Matthew King <i>Princeton University, United States of America</i>	
12:00 - 12:12	mRNA structure determines specificity of a polyQ-driven phase separation	42
	Erin Langdon <i>University of North Carolina at Chapel Hill, United States of America</i>	
12:12 - 13:45	Lunch ATC Foyer	
13:45 - 16:26	Session 6: Protein structure in the condensed state Chair: Tanja Mittag, St. Jude Children's Research Hospital ATC Auditorium	
13:45 - 13:50	Introduction by session chair ATC Auditorium	

13:50 - 14:20	FMRP phase separation in activity-dependent translation	43
	Julie Forman-Kay <i>Hospital for Sick Children/University of Toronto, Canada</i>	
14:20 - 14:50	Abnormal Phase Separation in Neurodegeneration and Cancer	44
	Richard Kriwacki <i>St. Jude Children's Research Hospital, United States of America</i>	
14:50 - 15:20	Single-Molecule and Polymer Physics views of Liquid Phase Separation	45
	Ashok Deniz <i>The Scripps Research Institute, United States of America</i>	
15:20 - 15:50	Coffee break & Meet the Speakers	
	ATC Foyer	
15:50 - 16:02	Seeing disordered protein LLPS with atomistic detail– role of disease mutation, post translational modification, and structured regions in LLPS, aggregation, and function	46
	Nicolas Fawzi <i>Brown University, United States of America</i>	
16:02 - 16:14	Multivalent interactions of the scaffold protein SPD-5 underlie PCM assembly in <i>C. elegans</i>	47
	Beatriz Gomes <i>Max Planck Institute of Molecular Cell Biology and Genetics, Germany</i>	
16:14 - 16:26	Emergent biochemical properties of membraneless organelles	48
	Timothy Nott <i>University of Oxford, United Kingdom</i>	
16:26 - 16:45	Feedback Survey Session	
	ATC Auditorium	
16:45 - 17:00	Coffee Break	
	ATC Foyer	

17:00 - 18:00 **Keynote lecture: Michael Rosen**
Chair: Carl-Philipp Heisenberg, Institute of Science and Technology

ATC Auditorium

**Composition-dependent functions of
biomolecular condensates**

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Michael Rosen

*UT Southwestern Medical Center/HHMI,
United States of America*

18:00 - 18:15 **Closing remarks**
ATC Auditorium

18:15 - 18:30 **Pre-dinner drinks**
ATC Foyer

18:30 - 20:30 **Conference Dinner**
EMBL Canteen

20:30 - 00:00 **Conference Party with DJ**
ATC Foyer