LMU LUDWIG-MAXIMILIANS-UNIVERSITÄT MÜNCHEN

# MOLECULAR ORIGINS OF LIFE

## CAS Conference 2018

## Thursday, 11 October 2018

### Session A

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|---|---|
| 08:30 - 8:55 | **Job Boekhoven (TU Munich)**<br>Self-selection of dissipative assemblies from primitive chemical reaction networks |
| 8:55 - 9:20 | **Irene Chen (UC Santa Barbara)**<br>Fitness landscapes of RNA |
| 9:20 - 9:45 | **Dora Tang (MPI for Cellular Molecular Biology and Genetics)**<br>Synthetic cellular models for probing the origin of life |
| 9:45 - 10:05 | **Discussion** |
| 10:05 - 10:35 | *Coffee break* |

### Session B

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| 10:35 - 11:00 | **Clemens Richert (University of Stuttgart)**<br>Enzyme-free replication of genetic sequences |
| 11:00 - 11:25 | **Phil Holliger (MRC Laboratory of Molecular Biology)**<br>Replicating RNA with RNA |
| 11:25 - 11:50 | **Niles Lehman (Portland State University)**<br>Scrambling to build the RNA world |
| 11:50 - 12:10 | **Discussion** |
| 12:10 - 13:30 | *External lunch break* |

### Session C

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| 13:30 - 13:55 | **François Guyot (Museum National d'Histoire Naturelle, Paris)**<br>Emergence of organized geochemical systems in the early earth |
| 13:55 - 14:20 | **Christof Mast (LMU Munich)**<br>Physical non-equilibria as driving force and habitat for the origin of life |
| 14:20 - 14:45 | **André Estevez-Torres (ESPCI Paris & Sorbonne Université)**<br>Synthesis of spatio-temporal structures with DNA molecular programs |
| 14:45 - 15:05 | **Discussion** |
| 15:05 - 15:35 | *Coffee break with* **poster session** |
| 15:35 - 16:35 | **Poster session** |

### Session D

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|---|---|
| 16:35 - 17:00 | **Andrei Lupas (MPI for Developmental Biology)**<br>Ribosomal proteins as documents of the transition from unstructured polypeptides to folded proteins |
| 17:00 - 17:25 | **Sijbren Otto (University of Groningen)**<br>Can we synthesize life in the lab? How chemistry may become biology |

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| 17:25 - 17:50 | **Laurie Barge (California Institute of Technology)**<br>Simulating prebiotic chemistry in hydrothermal systems on early earth and ocean worlds |
| 17:50 - 18:10 | **Discussion** |
| 18:10 | End |

## Friday, 12 October 2018

### Session E

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|---|---|
| 08:30 - 8:55 | **Dimitar Sasselov (Harvard University)**<br>Stellar UV light and the origins of life |
| 8:55 - 9:20 | **Cornelia Meinert (Université Nice Sophia Antipolis)**<br>The asymmetry of life |
| 9:20 - 9:45 | **Stephen Mojzsis (University of Colorado)**<br>Onset of late accretion to the inner solar system – consequences for the first habitats |
| 9:45 - 10:05 | **Discussion** |
| 10:05 - 10:35 | *Coffee break* |

### Session F

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|---|---|
| 10:35 - 11:00 | **Matt Powner (University College London)**<br>On the divergent synthesis of purine and pyrimidine nucleosides |
| 11:00 - 11:25 | **Saidul Islam (University College London)**<br>Prebiotic selection and assembly of proteinogenic peptides and ribonucleotides |
| 11:25 - 11:50 | **Thomas Carell (LMU Munich)**<br>The prebiotic origin of RNA building blocks on early earth |
| 11:50 - 12:10 | **Discussion** |
| 12:10 - 13:40 | *External lunch break* |

### Session G

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|---|---|
| 13:40 - 14:05 | **Matthew Pasek (University of South Florida)**<br>Disequilibrium polyphosphate formation from phosphorus redox |
| 14:05 - 14:30 | **Sheref Mansy (University of Trento)**<br>The emergence of iron-sulfur catalysts |
| 14:30 - 14:55 | **Shawn McGlynn (ELSI of Tokyo Institute of Technology)**<br>How much can we learn about ancient cells from sequence analysis? |
| 14:55 - 15:15 | **Discussion** |
| 15:15 - 15:45 | *Coffee break* |

### Session H

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|---|---|
| 15:45 - 16:10 | **Robert Pascal (University of Montpellier)**<br>How chemical kinetics can become a driving force for life self-organization |
| 16:10 - 16:35 | **Moritz Kreysing (MPI of Molecular Cell Biology and Genetics)**<br>Ribozyme reactions in the presence of uncharged and charged co-polymers |
| 16:35 - 17:00 | **Frank Postberg (Universtiy of Heidelberg)**<br>The subsurface ocean of enceladus: a habitable place in our solar system |
| 17:00 - 17:20 | **Discussion** |
| 17:20 | Closing of the Conference |

Venue: Literaturhaus München, Salvatorplatz 1, 80333 München

CAS LMU CENTER FOR ADVANCED STUDIES

life

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