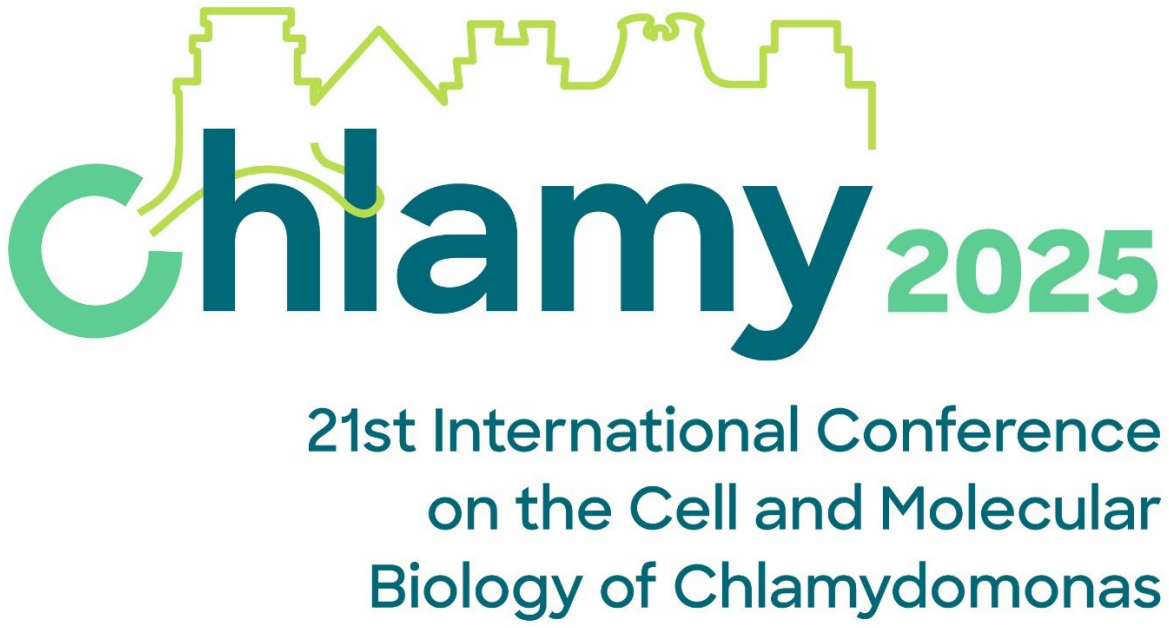
Universität Münster



CONFERENCE PROGRAM

August 24-29, 2025
Münster

Abstract Book

Poll for Best Talk and Best Poster

THE 21ST INTERNATIONAL CONFERENCE ON THE CELL AND MOLECULAR BIOLOGY OF CHLAMYDOMONAS

Chlamy 2025

MÜNSTER

All regular presentations are 12 min + 2 min discussion + 1 min transition

Sunday, August 24

17:00 - 19:00	**Registration**
19:00 - 20:00	**Dinner**
20:00 - 20:05	**Welcome: Michael Hippler, Michael Schroda, Gaia Pigino**
20:05 - 20:40	**Keynote talk : Sabeeha Merchant, University of California, Berkeley, USA** *Tales of algae: from fundamental discovery to applications*
20:40 - 21:15	**Keynote talk : Peter Hegemann, Humboldt University, Germany** *The mystical photoreceptors for clock phase shifting in Chlamydomonas*
21:15 - 23:00	**Social with wine and beer**

Monday, August 25

9:00 - 9:05	**Welcome note from Markus Wilhelm Lewe, Mayor of the city of Münster.**
9:05 - 9:40	**Keynote talk : Susan Dutcher, Washington University, USA** *Understanding cilia and basal bodies*

Session 1: Ciliary Length Control and the Ciliary Surface

Chair: Karl Lechtreck, University of Georgia, USA

9:40 - 9:50	**Introduction, Karl Lechtreck**
9:50 - 10:05	**Junmin Pan, Tsinghua University, China** *Regulation of axonemal microtubule assembly by a RCK kinase*
10:05 - 10:20	**Oranti Ahmed Omi, University of Georgia, USA** *Cilia length regulation by Chlamydomonas CDKL5/LF5 kinase*
10:20 - 10:35	**Friedrich H. Kleiner, TU Delft, Netherlands** *Role of mastigonemes in the green alga Chlamydomonas reinhardtii*
10:35 - 10:50	**Lara M. Hoepfner, University of Münster, Germany** *Unwrapping the ciliary coat: high-resolution structure and function of the ciliary glycocalyx in Chlamydomonas reinhardtii*
10:50 - 11:05	**Kenjiro Yoshimura, Shibaura Institute of Technology, Japan** *TRP channels that initiate ciliary responses in Chlamydomonas reinhardtii*
11:05 - 11:30	***Coffee break***

Session 2: Systems and Synthetic Biology
Chair: Saul Purton, University College London, UK

11:30 - 11:40	**Introduction, Saul Purton**
11:40 - 11:55	**Zoran Nikoloski, University of Potsdam & Max Planck Institute of Molecular Plant Physiology, Germany** *Integrated genome-scale metabolic modeling with phenotyping data from a gene knockout library predicts functions of uncharacterized genes*
11:55 - 12:10	**Julien Henri, Sorbonne Université, France** *Synthetic potentiation of Calvin fructose-bisphosphatase stability and function*
12:10 - 12:25	**Marta Bertolini, Sorbonne Université, France** *PRK introns activate Intron Mediated Enhancement in Chlamydomonas reinhardtii*
12:25 - 12:40	**Sophie Skanchy, Princeton University & Northeastern University, USA** *A chloroplast interactome reveals the organization of protein complexes in biosynthetic pathways*
12:40 - 14:00	***Lunch break***

Session 3: Biotechnology and applications
Chair: Thomas Baier, Bielefeld University, Germany

14:00 - 14:05	**Introduction, Thomas Baier**
14:05 - 14:15	**Lars Bähr, CellDEG GmbH, Germany** *Photoautotrophic ultra-high-density cultivation using membrane-PBRs*
14:15 - 14:30	**Tamar Elman, Tel Aviv University, Israel** *Photobiological hydrogen production at scale: integrating bioprocess optimization and techno-economic modeling*
14:30 - 14:45	**Matteo Ballottari, University of Verona, Italy** *Sustainable production of bio-based geraniol: heterologous expression of early terpenoid pathway enzymes in Chlamydomonas reinhardtii*
14:45 - 15:00	**Antonina Karakostova, University of Copenhagen, Denmark** *Transport engineering unlocks superior biomass production with concomitant lipid accumulation*
15:00 - 15:15	**Niayesh Forghanisardaghi, RPTU Kaiserslautern-Landau, Germany** *Exploring in vivo effects of enhanced RuBisCO activase thermostability in Chlamydomonas reinhardtii*
15:15 - 15:30	**Elodie Mathieu-Rivet, Université de Rouen Normandie, France** *Fine-tuning the N-glycosylation of recombinant human EPO using Chlamydomonas reinhardtii mutants*
15:30 - 15:45	**Alexander Einhaus, Bielefeld University, Germany** *Genome editing of epigenetic transgene silencing in Chlamydomonas reinhardtii*
15:45 - 16:20	***Coffee break***

Session 4: Cell and sexual cycles, multicellularity, diurnal behaviour
Chair: Jim Umen, Donald Danforth Plant Science Center, USA

16:20 - 16:35	**Introduction, Jim Umen**
16:35 - 16:50	**Arohi Khurana, Helmholtz Munich, Germany** *Histones in sync: how cell size and cycle orchestrate chromatin supply in Chlamydomonas*

16:50 - 17:05	**Gavin Duckett, City University of New York, USA** *Dynamic localization of a DNA replication protein during multiple fission*
17:05 - 17:20	**Caroline Simon, EMBL Heidelberg, Germany** *Chlamydomonas utilizes distinct microtubule organizing centers to regulate mitosis and cell polarity*
17:20 - 17:35	**Su-Chiung Fang, Academia Sinica, Taiwan** *Optimized ribosome profiling reveals new insights into translational regulation in synchronized Chlamydomonas reinhardtii cultures*
17:35 - 17:50	**Wilhelmus de Jong, TU Delft, Netherlands** *Cluster growth of Chlamydomonas reinhardtii in hydrogels with distinct stiffness*
17:50 - 18:05	**Stephen Miller, University of Maryland Baltimore County, USA** *Analysis of regA-group VARL gene function in Volvox carteri*
18:05 - 18:20	**Jennifer Pinello, University of Wyoming, USA** *Molecular determinants of species-specific cell-cell recognition activating the gamete fusogen HAP2*
18:30 - 20:00	***Dinner***
20:00 - 22:00	***Poster session I (Posters of sessions 5, 8, 10, 14) with beer and wine***

Tuesday, August 26

9:00 - 9:35	**Keynote talk : Yuichiro Takahashi, University of Okayama, Japan** *Dynamics of function and structure of photosynthetic complexes*

Session 5: Light Harvesting Regulation and Photosystem Function
Chair: Wojciech Nawrocki, IBPC Paris, CNRS, France

9:35 - 9:45	**Introduction, Wojciech Nawrocki**
9:45 - 10:00	**Dimitris Petroutsos, Uppsala University, Sweden** *PHOTOGAF, a GAF-domain protein interacting with phototropin is essential for photoprotection in Chlamydomonas reinhardtii*
10:00 - 10:15	**Katharina König, RPTU Kaiserslautern-Landau, Germany** *Complexome profiling of the Chlamydomonas psb28 mutant reveals TEF5 as an early photosystem II assembly factor*
10:15 - 10:30	**Guillaume Allorent, Université Grenoble Alpes, France** *LHL4 contributes to photosystem II monomer protection under high light*
10:30 - 10:45	**Fei Wang, Northwest University, Xi'an, China** *Chloroplast immunophilins play important functions in photosynthetic complex biogenesis and high light resistance in Chlamydomonas*
10:45 - 11:00	**Felix Vega de Luna, IBPC Paris, France** *Quantifying the photoprotective effect of qE NPQ in Chlamydomonas*
11:00 - 11.15	**Helen W. Liu, University of California, USA** *A distinct LHCI arrangement is recruited to photosystem I in Fe-starved green algae*
11:15 - 11:30	**Alexey Amunts, University of Münster, Germany** *Unprecedented plasticity in photosystem I: discovery of new antenna and photoprotection systems*
11:30 - 12:00	***Coffee break***

Session 6: Biotic Interactions
Chair: Alison Smith, University of Cambridge, UK

12:00 - 12:10 **Introduction, Alison Smith**

12:10 - 12:25 **Elad Meilin, The Hebrew University of Jerusalem, Israel**
Deep evolutionary conservation of bacterial antagonism towards plants

12:25 - 12:40 **Alissa Dierberger, Leipzig University, Germany**
Pyoluteorin produced by Pseudomonas protegens inhibits photosynthetic electron transport in Chlamydomonas reinhardtii

12:40 - 14:00 ***Lunch break***

Session 7: Control and Flexibility in Photosynthetic Electron Transport
Chair: Xenie Johnson, CEA Cadarache, France

14:00 - 14:10 **Introduction, Xenie Johnson**

14:10 - 14:25 **Afifa Zaeem, University of Münster, Germany**
N-terminal region of PetD is essential for cytochrome b6f function and controls STT7 kinase activity via STT7-dependent feedback loop phosphorylation

14:25 - 14:40 **Jade Marcus, Tel Aviv University, Israel**
Photosynthetic control and electron partitioning in ATP synthase mutants of Chlamydomonas reinhardtii

14:40 - 14:55 **Yu Ogawa, University of Münster, Germany**
High-resolution structural basis of the intermolecular interactions between photosystem I and cytochrome c6 in Chlamydomonas reinhardtii

14:55 - 15:10 **Dimitri Tolleter, Carnegie Institute of Science, USA**
Sustaining the cell energy in dynamic environments requires photosynthetic electron flows with diverse bandwidths

15:10 - 15:25 **Hiroko Takahashi, Saitama University, Japan**
Characterization of the cysteine residues in PGRL1 protein in the green alga Chlamydomonas reinhardtii

15:25 - 15:40 **Felix Buchert, University Münster, Germany**
Investigating cellular physiology under conditions of modified photosynthetic ATP yields

15:40 - 16:25 ***Coffee break***

Session 8: Metabolism and responses to the environment I
Chair: Yonghua Li-Beisson, Aix-Marseille Univeristy, CEA Cadarache, France

16:25 - 16:35 **Introduction, Yonghua Li-Beisson**

16:35 - 16:50 **Inmaculada Couso, IBVF-CSIC, Spain**
Unraveling the influence of inositol polyphosphates in the Chlamydomonas acclimation to light stress

16:50 - 17:05 **Olivia Gomez, Donald Danforth Plant Science Center, USA**
Inositol polyphosphates regulate polyphosphate storage and phosphate homeostasis in Chlamydomonas reinhardtii

17:05 - 17:20 **Matteo Pivato, University of Verona, Italy**
Abiotic stress-induced chloroplast and cytosolic Ca^{2+} dynamics in the green alga Chlamydomonas reinhardtii

17:20 - 17:35 **Yizhong Yuan, Carnegie Institution for Science, USA**
PHOT integrates light and temperature signals in Chlamydomonas reinhardtii

17:35 - 17:50	**Yeshoda Harry-Paul, University of Toronto, Canada** *The evolution of plasticity and heat adaptation*
17:50 - 18:05	**Cheuk Ling Wun, Vienna Biocenter GMI, Austria** *A chemical-genetic screen to identify novel signaling players during the chloroplast unfolded protein response*
18:05 - 18:20	**Adrien Burlacot, Carnegie Institution for Science, USA** *A high-throughput screen identifies genes coordinating energy sources and sinks in dynamic light*
18:30 - 20:00	***Dinner***
20:00 - 22:00	***Poster session II (Posters of sessions 7, 9, 11, 12, 13, 15) with beer and wine***

Wednesday, August 27

9:00 - 9:35	**Keynote talk : Martin Jonikas, Princeton University, USA** *Structure, biogenesis, and engineering of the pyrenoid*

Session 9: Metabolism and responses to the environment II
Chair: Claire Remacle, University of Liège, Belgium

9:35 - 9:45	**Introduction, Claire Remacle**
9:45 - 10:00	**Ursula Goodenough, Washington University, USA** *Guanine-Crystal Vacuoles (GCVs) serve as nitrogen reserves in Chlamydomonas*
10:00 - 10:15	**Jae-Hyeok Lee, Department of Biological Sciences, University of Manitoba, Canada** *A genetic screen uncovers NSI1–NRI1 axis for ammonium flux sensing and nitrogen use regulation in Chlamydomonas reinhardtii*
10:15 - 10:30	**Samuel Gámez Arcas, IBVF-CSIC, Spain** *Uncovering the regulatory network linking autophagy, photosynthetic carbon metabolism, and redox signaling in Chlamydomonas reinhardtii*
10:30 - 10:45	**Yong Zou, SLU, Sweden** *Characterization of autophagy pathway in green alga Chlamydomonas reinhardtii*
10:45 - 11:00	**Carla Blot, Aix Marseille University, CEA Cadarache, France** *Identification and characterization of a novel lipase VAL1 involved in lipid droplet turnover in Chlamydomonas*
11:00 - 11:15	**Antoine Kairis, Université de Liège, Belgium** *The chloroplastic Fe-S cluster maturation factors from Chlamydomonas, NFU1 and HCF101, have partially overlapping functions both in dark and light conditions*
11:15 - 11:30	**Haim Treves, RPTU Kaiserslautern-Landau, Germany** *Closing the growth-rate gap: how many engineering steps does it take?*
11:30 - 12:00	***Coffee break***

Session 10: Community Resources
Chairs: Olivier Vallon, IBPC Paris, CNRS, France and Paul A. Lefebvre, University of Minnesota, USA

12:00 - 12:05	**Introduction, Olivier Vallon and Pete Lefebvre**
12:05 - 12:20	**Ricardo Righetto, University of Basel, Switzerland** *Towards community-driven visual proteomics with large-scale cryo-electron tomography of Chlamydomonas reinhardtii*

12:20 - 12:40	**Olivier Vallon and Pete Lefebvre** *Discussion about Community Resources*
12:40 - 14:00	***Lunch break***
14:00 - 18:30	**Free afternoon with activities suggested**
18:30 - 20:00	***Dinner***
20:00 - 22:00	***Poster session III (Posters of sessions 1, 2 ,3, 4, 6) with beer and wine***

Thursday, August 28

9:00 - 9:35	**Keynote talk : Nathan Nelson, Tel Aviv University, Israel** *Structure and function of PSII assembly intermediates*

Session 11: Energetic Strategies and Environmental Pressures in Algal Photosynthesis
Chair: Felix Buchert, University of Münster

9:35 - 9:45	**Introduction, Felix Buchert**
9:45 - 10:00	**Ousmane Dao, University of York, UK, and CEA Cadarache, France** *Photorespiration is essential for acclimation to low CO_2 in Chlamydomonas*
10:00 - 10:15	**George Kusi-Appiah, Michigan State University, USA** *Regulation of the carbon-concentrating-mechanism and implications on the zinc economy in the eukaryotic green alga Chlamydomonas reinhardtii*
10:15 - 10:30	**Lando Lebok, University of Münster, Germany** *Disruptive effects on metabolic adaptations by engineering ATP synthase activity during darkness*
10:30 - 10:45	**Liat Adler, Stanford University, USA** *Energy delivery to the CO_2-concentrating mechanism in Chlamydomonas reinhardtii is spatially structured*
10:45 - 11:00	**André Vidal-Meireles, Aix Marseille University, CEA Cadarache, France** *The copper superoxide scavenger of oxygenic photosynthesis*
11:00 - 11:30	***Coffee break***

Session 12: Motility control by the axoneme and basal bodies
Chair: Takashi Ishikawa, Paul-Scherrer-Institute, Switzerland

11:30 - 11:40	**Introduction, Takashi Ishikawa**
11:40 - 11:55	**Aparna Sudhakar, EPFL, Switzerland** *Understanding the role of centrin network geometry in cilia motility and regeneration*
11:55 - 12:10	**YiWen Lin, Key Laboratory of Algal Biology, Chinese Academy of Sciences, China** *Redox-sensitive heme protein CrCYB5D1 couples intraflagellar redox dynamics to calcium signaling for coordinated flagellar beating in Chlamydomonas*
12:10 - 12:25	**Luo L, Laboratory for Multiscale Bioimaging, Paul Scherrer Institute, Switzerland** *Phosphorylation dependent regulation of flagellar coordination by FAP263 and associated distal protrusion proteins in Chlamydomonas reinhardtii*
12:25 - 12:40	**Stephen M. King, University of Connecticut Health Center, USA** *Towards a post-translational code for axonemal dyneins*
12:40 - 14:00	***Lunch break***

14:00 - 14:15 ***Group picture***

Session 13: Chlamydomonas as a model for structural biology
Chair: Ben Engel, Biozentrum Basel, Switzerland

14:15 - 14:25 **Introduction, Ben Engel**

14:25 - 14:40 **Alicia Michael, Institute of Science and Technology, Austria**
Circadian structural transitions of chromatin

14:40 - 14:55 **Silvia Ramundo, Gregor Mendel Institute, Austria**
Rethinking the origin of the plastid-encoded RNA polymerase complexity through the lens of Chlamydomonas

14:55 - 15:10 **Cuimin Liu, Institute of Genetics and Developmental Biology, Chinese Academy of Sciences, China**
Structural and functional characterization of the chloroplast ClpP protease complex in Chlamydomonas reinhardtii

15:10 - 15:25 **Florent Waltz, University of Basel, Switzerland**
Investigating the molecular architecture of mitochondria

15:25 - 15:40 **Radovan Spurný, Thermo Fischer Scientific**
Sponsor Talk

15:40 - 16:25 ***Coffee break***

Session 14: Organelle Biogenesis
Chair: Katia Wostrikoff (IBPC Paris, CNRS-SU, France)

16:25 - 16:35 **Introduction, Katia Wostrikoff**

16:35 - 16:50 **Thalia Salinas, CNRS-IBMP Strasbourg, France**
Distinct nucleotidyl transferase enzymes adding C or Us to the 3' end orient the fate of mRNA in Chlamydomonas mitochondria

16:50 - 17:05 **Claire Remacle, Université de Liège, Belgium**
NDUFAF3 is essential for the assembly of the Q/P modules of respiratory complex I in Chlamydomonas

17:05 - 17:20 **Elena Monte, CRAG, Spain**
Transcriptional reprogramming drives chloroplast biogenesis in Chlamydomonas

17:20 - 17:35 **Anna Probst, RPTU Kaiserslautern-Landau, Germany**
GETting to know GET3B: a functional analysis of C. reinhardtii GET3B

17:35 - 17:50 **Lisa Westrich, Institut de Biologie Physico-Chimique, France**
Rubisco assembly in the absence of Rubisco accumulation factor 1

17:50 - 18:05 **Shan He, University of Wisconsin-Madison, USA**
Kinase KEY1 controls pyrenoid condensate size by disrupting phase separation interactions

18:05 - 18:20 **Huan Long, Institute of Hydrobiology, Chinese Academy of Sciences, China**
Biogenesis, multi-organelle crosstalk, and dynamic remodeling of acidocalcisomes in Chlamydomonas reinhardtii

18:30 - 20:00 ***Dinner (including Business Dinner)***

20:00 - 24:00 ***Party***

Friday, August 29

9:00 - 9:35	**Keynote talk : Heymut Omran, University of Münster, Germany** *Novel molecular defects for motile ciliopathies*

Session 15: Novel methodologies

Chairs: Kaiyao Huang, Institute of Hydrobiology, CAS, China and Adrian Nievergelt, MPI-MP, Potsdam, Germany

9:35 - 9:45	**Introduction, Kaiyao Huang and Adrian Nievergelt**
9:45 - 10:00	**Cristina Ponce, University of Edinburgh, UK** *Deciphering the Cas9-induced DNA double-strand break repair for precision editing enhancement in Chlamydomonas reinhardtii*
10:00 - 10:15	**Felix Willmund, Philipps Universität Marburg, Germany** *Episomal plasmids allow efficient expression of transgenes in the chloroplast*
10:15 - 10:30	**Severin Sasso, Leipzig University, Germany** *Using enhancers for activation screens in Chlamydomonas reinhardtii*
10:30 - 10:45	**Víctor García-Riaño Domínguez, University of the Basque Country, Spain** *A strategy for studying Chlamydomonas renhardtii's ubiquitome*
10:45 - 11:00	**Adrian Nievergelt, Max Planck Institute of Molecular Plant Physiology, Germany** *The energetics of swimming motility in Chlamydomonas*
11:00 - 11:30	***Coffee break;*** *Poll for best posters and best talks of young investigators*
11:30 - 12:00	**Poster awards; announcement Chlamy 2027; farewell**
12:00	***Lunch to go***

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Locations

1: Münster Castle & Garden Tent, venue for registration, dinner and poster sessions (Schlossplatz 2)

2: Fürstenberg House, audience room for all sessions (Domplatz 20-22)

3: Cafeteria at Lake Aasee (Bismarckallee 11)

4: Münster **Main Station** (Berliner Platz 25)

5: City Hall and historical centre (Prinzipalmarkt 10)

Social Program

Guided bicycle tour to Hülshoff castle (Berliner Platz 27A)

Soccer Match (Horstmarer Landweg 68b)

Guided historical city tour (Prinzipalmarkt 10)

Guided tour LWL museum for arts and culture (Domplatz 10)

Bus App Download

Münster Castle – Fürstenberg House : 1 km

Cafeteria – Fürstenberg House : 1 km

Main Station – Münster Castle : 2 km