





After Zagreb in 2019, we are pleased to invite you to Brest (Brittany, France) for the 8th European Phycological Congress “**Scientific Opportunities for a Global Algal Revolution**” on behalf of the Federation of European Phycological Societies council and the French Phycological Society. France has a long and proud tradition of phycological research and has a very diverse algal flora. Brittany is a world hotspot for seaweed diversity with about 700 species and has historically developed a flourishing macroalgal industry that still maintains its leadership in Europe. The region also hosts important research institutes dedicated to microalgae research and oceanography.

The European Phycological Congress series began in Cologne, Germany in 1996 and has since continued the tradition of bringing together phycologists from around the world every four years. Its main objective is to provide a forum for discussion of the latest scientific, technological and societal developments in phycological research. EPC8 includes plenary presentations, a series of symposia grouped into 6 themes, contributed papers and posters covering a wide range of topics such as algal diversity, ecology, genomics, cell biology, applied phycology and societal perception of algae. To encourage cross-community connections, each symposium will address micro- and macroalgae from marine, freshwater, and terrestrial ecosystems whenever possible. We look forward to welcoming you to Brest in August 2023 for EPC8!

On behalf of the organizing committees,

Solène Connan and Philippe Potin



Brest and surroundings



Brest is a metropolis of 400,000 inhabitants, a tourist area as well as a living area. The city and its surroundings have many attractive facilities such as **Océanopolis**, one of the most attractive infrastructure of Brittany, the ocean discovery park (up to 450,000 visitors per year), and the **Ateliers des Capucins**, huge naval construction workshops converted into a cultural and living space, linked to the city center by the first urban cable car in France and where the Conference Diner will take place.



In addition, the city and suburbs possess numerous points of interest, such as the **National Botanical Conservatory of Brest**, a marvelous 30-hectare garden in Brest, an exceptional center of discovery of the plant world, welcoming 400,000 visitors each year; and the **Hélène and Edouard Leclerc Fund for Culture** in Landerneau, which offers top-notch painting exhibitions: Miró, Giacometti, Chagall, Picasso... Culture, heritage and art are major themes for the metropolis and are always bubbling: this is demonstrated by the fact that the city was recently classified "Town of Art and History".



Innovative and open to the world, Brest is distinguished from other French cities by its links with the marine environment, as well as its cutting-edge marine science and technology sector. In fact, it was from the port of Brest that great explorers set out to discover new worlds: La Pérouse, Kerguelen, Bougainville...



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Congress Venue

The conference will be held in Brest, Brittany (France) from **20 to 26 August 2023** at **Brest ARENA**, a sports and cultural center.



This structure located at 10 min from the city center of Brest by tramway offers a plenary room allowing to welcome 700 persons as well as 3 other rooms of 200 places and the spaces of restoration and exhibition.

How to come to Brest?



Brest has a **TGV train station** (3h30 from Paris) in the city center and an international airport close to the city center, with a shuttle and tramway service. **Brest Bretagne international airport** offers some international flights and a large choice of flights via Paris (Orly or Charles de Gaulle).

How to get to Brest-Arena?

Brest train station is located in the heart of the city, 500 m from Place de la Liberté, the ideal starting point for discovering the metropolis, which is served by all public transport.

Brest Bretagne airport is located 9 km from the city center or 15 minutes by car. The city center is accessible through a shuttle + tram service, taxis and car rental.

From the city center, to get to Brest-Arena, you need then to take the Tram direction "Porte de Plouzane" and leave it at the stop "Polygone".

The map of the BIBUS public transport network (tram) is available here: <https://www.bibus.fr/fr/se-deplacer/plan-reseau-bibus>

Taxis are also available 24 hours a day.

Scientific Committee chaired by



Inka Bartsch

Alfred Wegener Institute, Helmholtz
Center for Polar and Marine Research
Bremerhaven, Germany



Wiebe Kooistra

Stazione Zoologica Anton Dohrn,
National Institute of Marine Biology, Ecology and
Biotechnology, Italy

Plenary speakers



Karin Rengefors

Aquatic Ecology Department of Biology
Lund University, Sweden



Christophe Destombe

Evolutionary Biology and Ecology of Algae
International research laboratory IRL3614
Station Biologique de Roscoff
Sorbonne University, France



Angela Falciatore

Chloroplast biology and light perception in microalgae
Institute of Physical and Chemical Biology
UMR7141 CNRS-Sorbonne University
Paris, France



Thomas Wernberg

UWA Oceans Institute & School of Biological Sciences,
Indian Ocean, Marine Research Centre M470
The University of Western Australia

Norwegian Institute of Marine Research, His, Norway

6 THEMES

THEME 1: ALGAL DIVERSITY AND EVOLUTION

- SYM01: Taxonomy and Systematics
- SYM02: Biodiversity assessment and algal distribution in space and time
- SYM03: Phylogenetics, Phylogenomics and Evolution

THEME 2: CELL AND SYSTEM BIOLOGY OF ALGAE

- SYM04: Algae and their intimate partners.
- SYM05: New insights into the mechanisms and regulation of life cycles in algae.
- SYM06: Algal cell biology and ultrastructure.
- SYM07: Genomics technologies in algae.

THEME 3: ALGAE AND PRIMARY PRODUCTION

- SYM08: Algal photosynthesis, carbon fixation and respiration.
- SYM09: The global carbon-cycle.

THEME 4: ALGAE AND ECOSYSTEM FUNCTIONING

- SYM10: Ecology of algal systems.
- SYM11: Changing distribution patterns and new ecosystems.
- SYM12: Polar algae in a changing environment.
- SYM13: Algae and ecosystem functioning: the genomics perspective.

THEME 5: ALGAE AND THEIR BLUE-BIOTECH APPLICATIONS

- SYM14: Algal culture collections: their increasing societal relevance and role as gene repositories.
- SYM15: Algae as producers of valuable compounds.
- SYM16: Advances in algal production processes.
- SYM17: Public-Private partnerships in algal research.

THEME 6: ALGAE AND SOCIETY

- SYM18: Algae and the general public.
- SYM19: Algae, education and career pathways.
- SYM 20: Coastal and freshwater systems under human pressure: status assessment, management and conservation



THEME 1: ALGAL DIVERSITY AND EVOLUTION

Biodiversity studies comprise a range of approaches, including population genetics, biogeography, species detection and identification, and inference of evolutionary processes shaping this diversity. In recent years - omics technologies such as meta-barcoding and whole genome sequencing have revolutionised biodiversity- and ecological research, enabling the testing of hypotheses, unthinkable as little as a decade ago.

SYM01: Taxonomy and Systematics

Taxonomy and Systematics are as actual as ever. New technologies to study biodiversity have accelerated the pace at which algal species new to science are discovered and described. DNA metabarcoding has revealed how diverse various algal lineages really are. Novel imaging technologies reveal all these new species in exquisite detail, and DNA barcoding aids their identification as well as distinguishing them from one another. Not surprisingly, the various technologies are now incorporated in our modern taxonomic toolbox, and results obtained are integral components of modern species descriptions. Incorporation of novel approaches in taxonomy creates challenges as well. For instance, species descriptions based on DNA barcode sequences and ultrastructural details are at odds with early species descriptions based solely on features observable with the unaided eye and low magnification LM, though sequencing tiny pieces of macroalgal type specimens is nowadays common practice to resolve taxonomic issues. In general, classical and modern technologies generate a wealth of information by means of which diversity can be captured into biologically meaningful species. Contributions are invited showing how studies combining various methods contribute to the exploration and description of diversity in algae, and to the identification, characterization and delineation of species and populations.

Conveners:

- [Maxim Kulikovskiy](#) Laboratory of Molecular taxonomy of water plants, Institute of Plant Physiology, Russian Academy of Sciences, Moscow, Russia
- [Fabio Rindi](#) Dipartimento di Scienze della Vita e dell'Ambiente Università Politecnica delle Marche, Ancona, Italy

Keynote speakers:



[Frederik Leliaert](#)

Herbarium and Library Department, Botanic Garden
Meise, Belgium



[Patrick Kocielek](#)

Museum of Natural History and Department of Ecology
and Evolutionary Biology, University of Colorado, USA

SYM02: Biodiversity assessment and algal distribution in space and time

Novel methodologies, such as high-throughput sequencing metabarcoding, are revolutionising biodiversity studies. Metabarcoding data can reveal the biodiversity and composition of algal communities at different spatio-temporal scales than was feasible before. Such data can reveal intraspecific population genetic differentiation and uncover hidden biodiversity. Reference datasets needed to identify metabarcoding haplotypes are now rapidly being populated. Yet, algorithms to translate metabarcoding reads into biologically meaningful species are still under development. Contributions are invited on developments in uncovering species diversity, population structure, and biogeographic and seasonal patterning, with both classical and high-throughput methods. Topics can also include inferring distribution patterns, and tracking and modelling those patterns in space and time.

Conveners:

- [Uwe John](#), Ecological chemistry department, Alfred Wegener Institute, Helmholtz Centre for Polar and Marine Research, Bremerhaven, Germany
- [Sophie Steinhagen](#), University of Gothenburg, Department of Marine Sciences, Strömstad, Sweden

Keynote speakers:



[Klara Wolf](#)

Institute of Marine Ecosystem and Fishery Science,
University of Hamburg, Hamburg, Germany



[Petra Nowak](#)

Aquatic Ecology, University of Rostock, Rostock,
Germany

SYM03: Phylogenetics, Phylogenomics and Evolution

Models and theories of evolutionary processes are increasingly applied in phycology. Genomes of many species are becoming available, enabling inference of evolutionary histories based on entire genomes instead of a few markers. Such results shed light on major transitions, acquisitions of new traits, and other innovations in the evolutionary history of lineages. Well-resolved phylogenies in combination with morphological, physiological or ecological data help to answer evolutionary questions related to diversification and the evolution of phenotypes. Evolution is also working in the here and now. Comparison of genomes among individuals from the same or different population may uncover adaptation in progress. Contributions are invited that combine genomics- and other resources with advances in technologies to explore evolutionary histories, as well as experimental designs to test hypotheses on evolution in action. We also welcome contributions about the deep evolutionary history of the major algal phyla and on how and when they came into being.

Conveners:

- [Yvonne Němcová](#), Department of Botany, Charles University in Prague, Czech Republic
- [Olivier De Clerck](#), Phycology Research Group, University of Gent, Belgium

Keynote speakers:



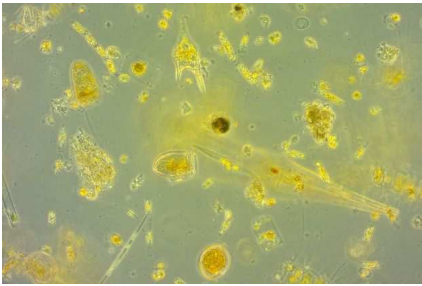
Bojian Zhong

College of Life Sciences, Nanjing Normal University,
Nanjing, China



Marek Elias

Department of Biology and Ecology, Faculty of Science,
University of Ostrava, Czech Republic



THEME 2:

CELL AND SYSTEM BIOLOGY OF ALGAE

Next to the abiotic environment, the intimate biota of algae affect algal growth, development, and sexual reproduction, and these do so in often surprising ways. Such interactions can now be studied in all their intricate detail through incorporation of metabolome, transcriptome and genome analyses and epigenetics assessments, even of single cells. Ultrastructure and composition of algal cells feature prominently in these studies as well. Contributions to this THEME are invited in the symposia: 'Algae and their intimate partners', 'New insights into the mechanisms and regulation of life cycles in algae', 'Algal cell biology and ultrastructure' and 'Genomics technologies in algae'.

SYM04: Algae and their intimate partners

Many micro- and macroalgae engage in tightly knit relationships with other species, including other eukaryotes, bacteria and viruses. Relationships can be symbiotic, mutualistic or plain parasitic. In many symbiotic relationships the partners affect each other's shape and physiology/metabolism to such an extent that they seem to have developed into lifeforms of their own. Some algae even cannot grow and develop without their microbiome. Parasites and viruses are able to control phytoplankton blooms. Many red algae show intricate relationships with alveophagous parasites. Contributions can include -but are not restricted to- diversity assessments of such relationships, functional studies on interactions, and conceptual advances into, for instance, how such interactions are established, maintained and disrupted, how they evolve together, and how their genomes, transcriptomes and metabolomes adapt to enduring relationships. This symposium also invites contributions to the evolving field of algal holobiome research and its impact on the functioning of species.

Conveners:

- [Johan Decelle](#), CNRS Laboratoire Physiologie Cellulaire & Végétale, CEA-Grenoble, France
- [Aschwin H. Engelen](#), Biogeographical Ecology and Evolution, Gambelas Campus, UAlg, Faro, Portugal

Keynote speakers:



[Suhelen Egan](#)

School of Biological, Earth and Environmental Sciences,
UNSW Sydney, Australia



[Shady A. Amin](#)

Department of Biology, Science Division, New York
University Abu Dhabi, UAE

SYM05: New insights into the mechanisms and regulation of life cycles in algae

Algae show a fascinating diversity of life cycles, often associated with morphologically and functionally distinct haploid and diploid stages. Transitions between these stages can be triggered by environmental factors, including the microbiome, as well as by endogenous and external drivers. For many algal lineages, the genes governing these processes and the ways they operate are still largely unknown. At present, analytical approaches combining genome data, data from transcriptomics, single cell-omics, epigenetics and proteomics, provide new perspectives of studying the regulation of sexual reproduction and transition between life cycle stages in algae. In addition, epigenetics is an emerging topic that may help towards a better understanding of rapid adaptation of the phenology within and across life cycle stages in a changing environment. Contributions to this symposium are invited about -but not restricted to- the various types of life cycles, their morphological and/or physiological differentiation between life cycle stages, conditions that trigger or thwart reproduction, the genomic machinery behind reproduction and the evolutionary history of the complexity of life cycles in algae. In addition, we invite contributions from studies highlighting how alternate generations may transfer information from one stage to the next, e.g. via epigenetics or via general cross-generational effects.

Conveners:

- [Mariella Ferrante](#), Stazione Zoologica Anton Dohrn, Naples, Italy
- [Agnieszka P. Lipinska](#), Department of Algal Development and Evolution, Max Planck Institute for Biology, Tübingen, Germany

Keynote speakers:



[Kenny Bogaert](#)

Phycology Research Group, UGent,
Ghent, Belgium



[Gust Bilcke](#)

Comparative Network Biology Group, UGent,
Ghent, Belgium

SYM06: Algal cell biology and ultrastructure

Algae are a diverse assemblage of organisms that belong to several phylogenetically independent lineages. Algae are adapted to many different habitats, have different trophic levels, and exhibit variation in Bauplan ranging from tiny unicells to unicellular syncytia and complex multicellular organisms composed of different cell types. Unsurprisingly, internal cell structure is similarly diverse and various unique traits of taxonomic significance have been described. Contributions are invited that focus on describing the structures of algal cells and their subcellular compartments, their biochemical composition and function, and the way these features are inherited or re-assembled in the next generation of cells. Contributions on the reconstruction of the evolutionary history of cell structures are also welcome, as are contributions of advanced microscopy techniques unveiling ultrastructural details.

Conveners:

- [Zoë A. Popper](#), Botany and The Ryan Institute, School of Natural Sciences, National University of Ireland, Galway, Ireland

- [Nils Kröger](#), B CUBE, Technische Universität Dresden, Germany

Keynote speakers:



[Klaus Herburger](#)

Institute of Biological Sciences, University of Rostock,
Germany



Assaf Gal

Department of Plant and Environmental Sciences,
Weizmann Institute of Science, Rehovot, Israel

SYM07: Genomics technologies in algae

Algal model species are often the first on which novel technologies developed outside the phycolgical community are applied before they find their way into the mainstream of phycolgy. Novel genomics applications now enable the study of their complexity and functioning in exquisite detail, including their internal circadian clocks, their responses to external signals, or their interactions with other microorganisms. Sophisticated DNA-editing tools are now available to assess, for instance, gene functioning. In addition, genomics has miniaturised, as it is now possible to obtain transcriptome snapshots of single cells in action, which enables the study of processes in exquisite detail and in rapid succession. Contributions are invited on the various approaches used to elucidate the genomic complexity of model algae, to tackle fundamental questions about how cells and algal thalli function, how they regulate their metabolic activities and how they respond to environmental and endogenous triggers. Contributions on new algal models are welcome as well, especially if these models allow testing hypotheses that cannot be tackled with existing models.

Conveners:

- [Maria Mittag](#), Matthias Schleiden Institute of Genetics, Bioinformatics and Molecular Botany, Friedrich Schiller University, Jena, Germany
- [Claire Gachon](#), UMR 7245 - Molécules de Communication et Adaptation des Micro-organismes - Muséum National d'Histoire Naturelle, CNRS, Paris, France

Keynote speakers:



Sigrid Neuhauser

FWF, Institute of Microbiology, Innsbruck, Austria



[Thomas Mock](#)

School of Environmental Sciences, Uni. East Anglia,
Norwich, UK



THEME 3:

ALGAE AND PRIMARY PRODUCTION

Algal photosynthesis and respiration, together with exudation, uptake and sequestration of organic matter, represent key-physiological and ecological processes in the global carbon cycle, both in freshwater and marine systems. These processes are species-specific and influenced by complex interactions with environmental factors. Advances in our knowledge in micro- and macroalgae alike, will foster our understanding of the key-roles these organisms play in countering global change.

SYM08: Algal photosynthesis, carbon fixation and respiration

This symposium addresses the mechanisms of photosynthesis, including photo-biology and carbon fixation as well as carbon-storage and respiration. Novel technologies, in situ and ex situ methodologies and modelling approaches open up new ways of investigating and quantifying how algae fix, store and respire carbon. Advances in our understanding of these fundamental processes can be expected not only to improve our understanding of algal ecology and net ecosystem productivity, but also lead to practical improvements in the mass cultivation of algae for commercial purposes. Contributions are invited on all aspects of photosynthesis, improved in situ and ex situ measuring techniques, the physiological and molecular mechanisms of photosynthesis, its environmental controls, the relationship between photosynthetic oxygen production and carbon fixation and how this may relate to the carbon cycle (see below) or biotechnological advances. Since ocean acidification affects these processes, contributions in this topic are welcome as well.

Conveners:

- [Concepción Iñiguez Moreno](#), Department of Ecology, Faculty of Science, University of Málaga, Spain
- [Giovanni Finazzi](#), Interdisciplinary Research Institute of Grenoble (IRIG), CEA Grenoble, France

Keynote speakers:



[Benjamin Bailleul](#)

Laboratory of Chloroplast Biology and Light Sensing in Microalgae, Institut de Biologie Physico-Chimique, CNRS, Sorbonne Université, Paris, France



[Yusuke Matsuda](#)

Department of Bioscience, School of Biological and Environmental Sciences, Kwansei Gakuin University, Hyogo, Japan

SYM09: The global carbon-cycle

Primary production fuels the biosphere and drives the global carbon cycle. There is increasing evidence that not only phytoplankton but also vegetated ecosystems contribute considerably to fixation and long-term sequestration of carbon. Yet, there are still massive knowledge gaps, in particular for macroalgal forest. It is

also unclear how global change will alter the functioning of these ecosystems, including their ability to sequester carbon. Contributions are invited to all aspects of the marine carbon cycle, addressing the fate of algal primary production and its contribution to the carbon cycle. This includes production and fate of detritus and dissolved organic carbon from macroalgae. Contributions on changes in the capacity of various algal communities to fix and sequester carbon under various climate change scenarios are also welcome.

Conveners:

- [Karen Filbee-Dexter](#), University of Western Australia, Department of Biological Sciences | Institute for Marine Research, Norway
- [Sebastian Rokitta](#), Alfred-Wegener-Institut – Helmholtz-Centre for Polar and Marine Research, Department of Marine Biogeosciences, Bremerhaven, Germany

Keynote speakers:



[**Mar Fernandez-Mendez**](#)

Alfred-Wegener-Institute – Helmholtz-Centre for Polar and Marine Research, Department of Polar Biological Oceanography, Bremerhaven, Germany



[**Albert Pessarrodona**](#)

Oceans Institute and Department of Biological Sciences, University of Western Australia, Crawley, Australia



THEME 4: ALGAE AND ECOSYSTEM FUNCTIONING

Considerable research focuses on the resilience of algae-dominated ecosystems to global change and on tipping points beyond which sudden, radical changes in species composition occur. Ecosystems in polar regions are particularly affected as global change is most pronounced there, and retreat to higher latitudes is not an option. Omics technologies enable unprecedented insights into the functioning of entire communities and into their resilience limits.

SYM10: Ecology of algal systems

The functioning of algae in their ecosystems depends amongst others on their autecology, their biochemical bouquet such as their toxins or deterring substances and their interactions with other organisms living with them or grazing on them. And all of this is affected by external primary and secondary abiotic drivers. Insights in the complexity of interactions and functionalities in algal communities and their resilience to environmental change are key to our ability to predict how ecosystems will fare in the face of global change and help towards designing best ecosystem management practices towards mitigation of its effects. The increasing ability to refer functional differences to genotypes and metabolic functionalities also enhances our understanding of ecotypic and phenotypic diversity. Contributions of all aspects of algal ecology are invited to better reveal the ability of algal ecosystems to cope with their biotic and abiotic environment, including studies exploring the interactions among species, for instance, by means of uni- and multifactorial experimental designs. Results of studies elucidating the relations between functional, metabolic and genetic diversity and population resilience to environmental change are also particularly welcome.

Conveners:

- [Florian Weinberger](#), Marine Ecology Division, GEOMAR Helmholtz-Centre for Ocean Research, Kiel, Germany
- [Petra Visser](#), Dept. Freshwater and Marine Ecology, IBED, University of Amsterdam, The Netherlands

Keynote speakers:



[Marine Vallet](#)

Phytoplankton Community Interactions, Max Planck Institute for Chemical Ecology, Jena, Germany



[Dedmer Van de Waal](#)

Department of Aquatic Ecology, Netherlands Institute of Ecology (NIOO-KNAW), Wageningen, The Netherlands

SYM11: Changing distribution patterns and new ecosystems

Climate change affects the distribution ranges and abundances of algae in both pelagic and benthic systems. This may cause intense micro- and macroalgal blooms or invasion of alien or migratory species, both of which

will shape ecosystems. Locally and also over wide geographic ranges the abundances, phenology, and zonation patterns of algae are changing. Changes not only affect the local algal diversity but also alter the functioning of the ecosystems of which they are an integral part. Contributions to this symposium can include studies on biodiversity, life cycles and phenology, bloom forming and invasive species, their ecology, ecophysiology, and omics whose results help assess how environmental changes affect distribution patterns of species and entire communities and how species or communities cope with the changes. Studies on changes in the distribution ranges of canopy formers and other keystone species including bloom-forming species are especially welcome and so are contributions on conservation and restoration of local populations as well as the improvement of their resilience to change.

Conveners:

- [Gareth A. Pearson](#), Centre of Marine Sciences (CCMAR), Universidade do Algarve, Faro, Portugal
- [Anke Kremp](#), Biological Oceanography, Leibniz Institute for Baltic Sea Research Warnemuende, Rostock, Germany

Keynote speakers:



[Anita Narwani](#)

Department of Aquatic Ecology, Eawag, Dübendorf, Switzerland



[Ester A. Serrão](#)

Centre of Marine Sciences (CCMAR), Universidade do Algarve, Faro, Portugal

SYM12: Polar algae in a changing environment

The Arctic and Antarctic regions are challenging environments for algae, given low to no light during winter and almost continuous light in high summer under low temperatures. Nowadays however, the polar regions are the ones warming up the fastest. As a result, algal diversity, primary productivity and distribution patterns experience unprecedented changes. Especially coastal and fjord systems are affected by increasing melt-water discharge, resulting in increased salinity drops and sedimentation rates. In addition, they face an extension of the open-water period and a release from light limitation. Many algae in polar habitats are adapted to low temperatures and polar conditions in general, but these adaptations are now potentially becoming a liability in the face of unprecedented environmental change and immigrating temperate species. Contributions are invited on all aspects highlighting the changing conditions in which polar algae find themselves and their ability to cope with these changes on land, in the sea-ice, along the coasts and in the open water, their resilience and/or adaptability to change, and their competitive abilities against temperate immigrants.

Conveners:

- [Linda Nedbalová](#), Department of Ecology, Faculty of Science, Charles University, Prague, Czech Republic
- [Johann Lavaud](#), LEMAR-Laboratory of Environmental Marine Sciences, Institut Universitaire Européen de la Mer, Université de Bretagne Occidentale, Plouzané, France

Keynote speakers:



[Christopher J. Williamson](#)

School of Geographical Sciences, University of Bristol,
UK



[Marina Cvetkovska](#)

Department of Biology, University of Ottawa, Ottawa,
Canada

SYM13: Algae and ecosystem functioning: the genomics perspective

Metagenomics, meta-transcriptomics and metabarcoding provide exquisitely detailed insights in the composition of entire communities and in the communal activities and interactions of its members. Reference genomes and transcriptomes are now produced at an ever-increasing pace, which help translating the masses of reads produced by High Throughput Sequencing techniques of environmental DNA or mRNA into biocomplexity and bioactivity of entire communities. In order to make that translation meaningful many challenges have to be overcome. Contributions are invited on meta-omics studies to assess the composition and complexity of whole communities in which algae are key players and their interaction with the environment. Particularly welcome are contributions on innovative ways to study these types of data in order to advance knowledge of biodiversity and ecosystem functioning.

Conveners:

- **Flora J. Vincent**, Developmental Biology Unit, EMBL, Heidelberg, Germany
- **[Bente Edvardsen](#)**, Section for Aquatic Biology and Toxicology, Department of Biosciences, University of Oslo, Norway

Keynote speakers:



[Simon Dittami](#)

CNRS/ Sorbonne Université, Station Biologique de
Roscoff, Roscoff, France



[Chana Kranzler](#)

The Mina and Everard Goodman Faculty of Life Sciences,
Bar Ilan University, Ramat Gan, Israel



THEME 5:

ALGAE AND THEIR BLUE-BIOTECH APPLICATIONS

Algae are a treasure trove of bioactive molecules for BlueTech applications. The first step in these applications is the choice of organisms or even consortia of organisms, either from natural populations or provided by algal culture collections. A rapidly increasing number of companies use algae or algal compounds in various sectors, but scaling up of algal cultures towards cost-effective production are often challenging.

SYM14: Algal culture collections: their increasing societal relevance and role as gene repositories

Algal culture collections play a fundamental role in research, technological development and industrial innovation. They are repositories of myriads of research strains, they refine protocols for the maintenance of an ever-wider range of species, even the most recalcitrant ones, they develop cryo-preservation methodologies to ensure long-term genetic identity of strains, and in public-private partnerships work on the scaling up of algal cultures. Culture collections even can develop a role as pan-European or pan-WORLD repositories for gene pools of species on the brink of extinction or of aquaculture species. Contributions are welcome on the maintenance of recalcitrant species, on new lineages on symbionts, on whole microbiomes, as well as on the generation and maintenance of axenic strains important for genomics applications. In addition, contributions are solicited on the cryopreservation or alternatives for the long-term preservation of strains.

Conveners:

- [Filip Pniewski](#), Gdańsk University, Faculty of Oceanography and Geography, Culture Collection of Baltic Algae, Gdynia, Poland
- [Peter Chaerle](#), Ghent University, Faculty of Sciences, Department of Biology, Protistology and Aquatic Ecology, BCCM Diatoms Collection Gent, Ghent, Belgium

Keynote speakers:



[Annick Wilmotte](#)

BCCM/ULC Cyanobacteria Collection, InBios,
Department of Life Sciences,
University of Liège, Belgium



[Ian Probert](#)

Station Biologique de Roscoff, Centre de recherche et
d'enseignement en biologie et écologie marines FR2424,
Roscoff, France

SYM15: Algae as producers of valuable compounds

Algae are a rich source of bioactive substances and other valuable compounds and materials. These compounds have a variety of functions ranging from stress protection, signaling, defence against antagonists, and nutrient capture, amongst others. At the same time, the functions of many algal compounds remain unelucidated. Many of these compounds are complex molecules, difficult to produce in any other way than

by the algae. Many algal products nowadays find their way into pharmaceutical or cosmeceutical industries. However, the road from the discovery of valuable algal substances to their commercial applications is long, and only a very few make it all the way into commercial products. Contributions are invited on the finding of novel bioactive compounds and substances, especially in underexplored algal lineages, compounds extraction, identification and characterization regarding their bioactivity, with a focus on approaches to their production using algal biotechnology.

Conveners:

- [Abd El-Fatah Abomohra](#), New Energy and Environmental Laboratory (NEEL), Department of Environmental Engineering, School of Architecture and Civil Engineering (SACE), Chengdu University, China
- [Alexei Solovchenko](#), Bioengineering Department, Faculty of Biology, M.V. Lomonosov Moscow State University, Russia

Keynote speakers:



[Dieter Hanelt](#)

Department of Biology, Institute of Plant Science and Microbiology, Hamburg University, Germany



[Inna Khozin-Goldberg](#)

Microalgal Biotechnology Laboratory, French Associates Institute for Agriculture and Biotechnology of Drylands, J. Blaustein Institutes for Desert Research, Ben-Gurion University of the Negev, Israel

SYM16: Advances in algal production processes

This symposium focuses on novel directions of Blue Biotech applications in algae. Industrial-scale production processes often rely on wild type strains producing substances of interest in amounts required in their environmental context. Yet, advances in genomics methodologies and selective breeding applied to improve production can greatly increase the cost-effectiveness of production processes. Contributions may include systems and methodologies to optimise and scale up production of compounds of interest, or make the production processes more efficient. Contributions are invited on the exploration of production pathways as well as the optimisation of those pathways and the scaling up of production. Also invited are contributions from synthetic biology: redesigning organisms by engineering them to have new abilities or make new products for medicine, manufacturing, and agriculture.

Conveners:

- [Maria do Rosario Domingues](#), Lipidomics Laboratory, Mass Spectrometry Center, Department of Chemistry, University of Aveiro, Portugal
- [Joanna Kargul](#), Solar Fuels Laboratory, Centre For New Technologies, University of Warsaw, Poland

Keynote speakers:



[Yagut Allahverdiyeva-Rinne](#)

Molecular Plant Biology Unit, Department of Life Technologies, University of Turku, Finland



[Hugo Pereira](#)

GreenCoLab - Associação Oceano Verde, University of Algarve, Faro, Portugal

SYM17: Public-Private partnerships in algal research

Early-career scientists and students in phycology often perceive career possibilities in phycological research as limited, seeing their scientific supervisors as role models of careers in academia. However, there are many opportunities for rewarding careers in (collaboration with) the private sector. Algae have found their way in many industrial production processes, and in large-scale aquaculture. And where algae are used, researchers are in demand to trouble-shoot, optimise and innovate. Yet, despite the many opportunities there are issues that sit in the way of such partnerships. Contributions are welcome from public-private partnership research projects and their aims, from researchers working in partnership with companies, or working in companies. The emphasis is not on scientific methodologies or results, but on experiences with working in the private sector. What are companies' expectations from scientists working with them or for them? What about setting up your own start-up or spin-out company? What is needed to translate smart ideas into marketable products.

Conveners:

- **[Annette Bruhn](#)**, Department of Ecoscience, Centre for Circular Bioeconomy, Aarhus University, Denmark
- **[Stefan Kraan](#)**, The Seaweed Company, Ireland

Keynote speakers:



[Monique T Mulder](#)

Laboratory of Vascular Medicine, Department of Internal Medicine, Erasmus University Medical Center, Rotterdam, the Netherlands



[Esben Rimi Christiansen](#)

Pure Algae, Grenaa, Denmark



THEME 6: ALGAE AND SOCIETY

Interest in algae is growing among many stakeholders including the general public. Algae are increasingly perceived as healthy and pretty, but blooms of potentially harmful species affect ecological health and human wellbeing. Monitoring the diversity and changes in the composition of algal systems provides indispensable data for local governance to make informed policy choices. Scientists and teachers need to play their part in increasing public awareness about how algae help to address burning societal needs.

SYM18: Algae and the general public

The public at large shows an increasing interest in algae. Algae are nowadays seen as something positive, healthy, valuable, useful and at times, beautiful, rather than yuck to be scrubbed away with a wholesome dose of household bleach. The reasons for this change of minds are manifold. Algae or their derivatives are found in an ever-expanding range of products, from cosmeceuticals and medicines to food and feed. Because of that, algae contribute to employment, economic development and human prosperity, especially in developing societies or regions. Algae are often stunningly beautiful, providing inspiration for artists. Many citizen scientists are experts in algal taxonomy, contributing to the advancement of knowledge on algal biodiversity and distribution. However, this positive image is easily destroyed by algae featuring negatively in the news, for instance ‘killer algae,’ and ‘harmful algal blooms;’ never mind that such blooms usually result from human-induced ecosystemic imbalances. Phycologists need to translate scientific knowledge about algae effectively to the general public and transfer that knowledge into practical applications. They need to engage with local communities to foster the usage of algae, thereby generating employment and increasing wellbeing and prosperity. Transfer of this knowledge of algae, requires having a combination of various disciplines developing an inter- and transdisciplinary research environment with strategies for societal practices. They need to inform policy makers about the crucial ecosystem services algae provide, to enable them to address environmental challenges associated with algae and their ecosystems. Literacy needs to be disseminated using the rapidly developing e-means available but avoiding the pitfalls of such communication. Contributions are invited on dissemination and outreach projects to the general public, on ecosystem service of algae, adaptive co-management and research on how algae can buffer the impact of climate change on local livelihoods; exercises engaging citizens with the spreading of knowledge and/or participating in topical research are welcome.

Conveners:

- [Nils Ekelund](#), Dept. Natural Sciences, Mathematics, Society, Faculty of Education and Society, Malmö University, Sweden
- [Johanna Weggelaar](#), Algae Platform, Atelier Luma / Luma Arles, France

Keynote speakers:



[Fredrik Gröndahl](#)

Dept. sustainable development environmental science and engineering (SEED), School of Architecture and the built environment (ABE), Royal Institute of Technology, KTH, Stockholm, Sweden



[Alix Levain](#)

UMR 6308 AMURE,
CNRS, Plouzané, France

SYM19: Algae, education and career pathways

Many of us have teaching commitments and are involved in teaching students, training PhD students, and coaching early career postdocs. Teaching is also an essential part of our professional career because it guarantees that future colleagues take over the baton. Students should learn about career pathways, both in academia and in industry and business (biotechnology, farming, new products, etc.). New technologies and the COVID-19 pandemic have shaken up models and modes of teaching. Contributions are invited on sharing experiences and innovative ways of teaching and training all aspects of algae to a range of target groups, including their practical applications. Furthermore, we invite contributions that exemplify pathways from academia to business and the challenges involved between idea and their realisation.

Conveners:

- **[Cecilia Maria Totti](#)**, Department of Life and Environmental Sciences, Università Politecnica delle Marche, Ancona, Italy
- **[Conxi Rodríguez-Prieto](#)**, Faculty of Science, University of Girona, Spain

Keynote speakers:



[Suzanne Frederique](#)

Department of Biology, University of Louisiana at Lafayette, USA



[Morgan Vis](#)

Department of Environmental and Plant Biology, Ohio University, Athens, USA

SYM 20: Coastal and freshwater systems under human pressure: status assessment, management and conservation

Eutrophication, pollution, coastal obstructions, river regulation, global warming, and other human-induced pressures on our fresh, transitional, and coastal waters, alone or in combination, have caused tremendous impact on water resources and the associated algal ecosystems. These systems are, in addition, threatened by unsustainable harvest or aquaculture. In many European Directives, such as the WFD or MSFD, algae are used as quality elements or indicators for water quality and ecological status; many management strategies are based on algal biodiversity and their abundances. In addition, in recent years, new conservation strategies have been developed to counteract, e.g., the decline of seaweed forests or the freshwater riverine systems degradation. Contributions are invited on any aspect of water management and conservation which are centred around algae and especially new conservation strategies to mitigate the loss of biodiversity, keystone species or habitats are of interest. Information on practical applicability and up-scaling strategies are needed and concepts for sustainable aquaculture enabling to keep good water quality and preserve biodiversity are welcome.

It is with great sadness that we have to announce the sudden death of our colleague Erwan Ar Gall, the convenor of mini-symposium 20. To pursue his enthusiastic investment in the preparation of a successful EPC8, Elvira Ramos Manzanos has kindly accepted to work with Sotiris Orfanidis to serve as a co-convenor.

Conveners:

- [Elvira Ramos Manzanos](#), IHCantabria - Instituto de Hidráulica Ambiental de la Universidad de Cantabria, Santander, Spain
- [Sotiris Orfanidis](#), Fisheries Research Institute (HAO-DIMITRA), Kavala, Greece

Keynote speakers:



[Elvira Ramos Manzanos](#)

IHCantabria - Instituto de Hidráulica Ambiental de la Universidad de Cantabria, Santander, Spain



[Matina Katsiapi](#)

EYATH SA, Water Supply Division-Drinking Water Treatment Facility, Thessaloniki, Greece
School of Biology, Aristotle University of Thessaloniki, Greece