

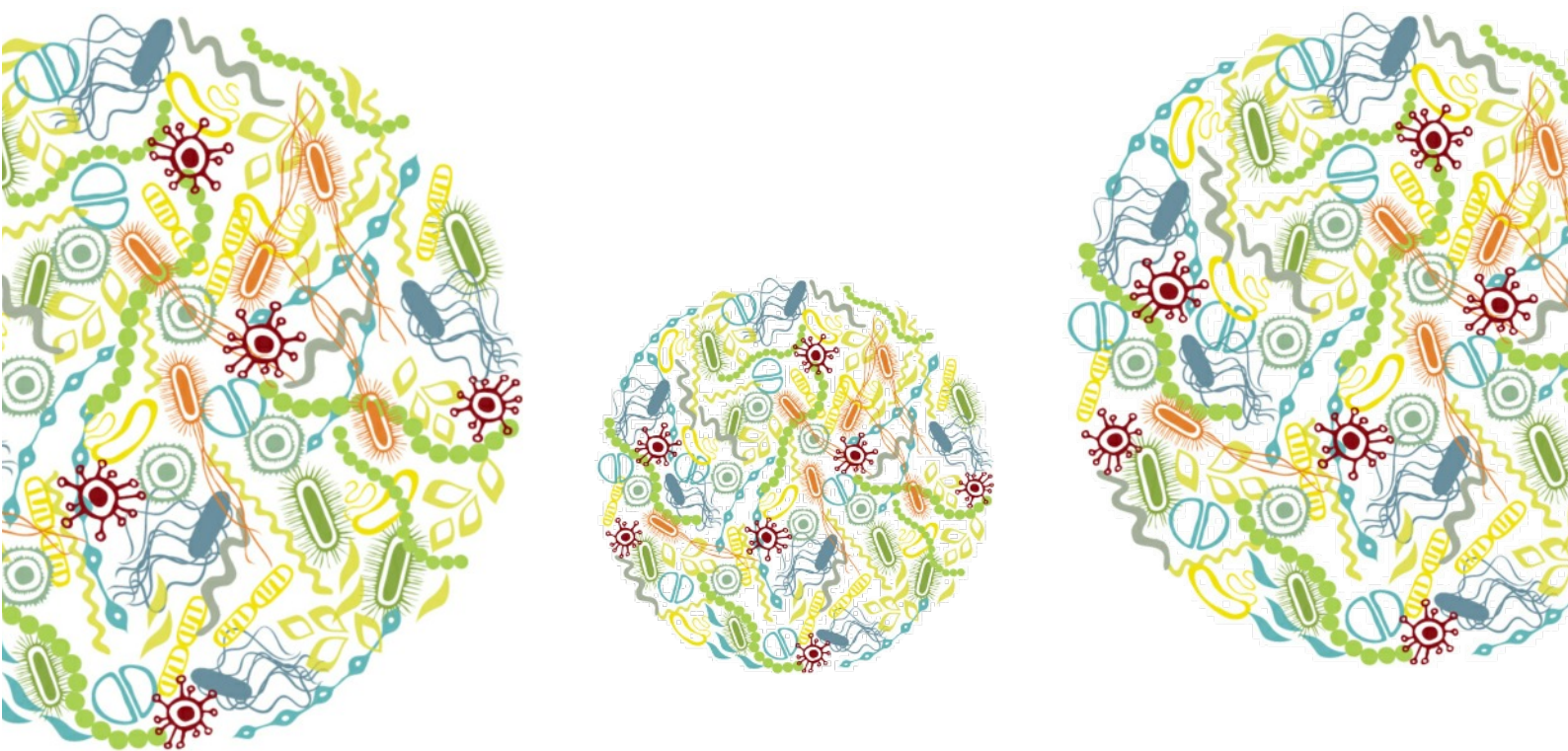
# Summer School of MIKROBIOKOSMOS 2018



*The role of microbiome in ecosystem functioning, food security,  
human health and environmental protection*

10 years of MIKROBIOKOSMOS in the Scientific Community of GREECE

Venue: Conference and Cultural Centre of the Univ.Thessaly in the old  
Monastery Paou, Argalasti Pelion Greece (<http://mpaou.uth.gr/en/>)  
Time: 24-28 June 2018

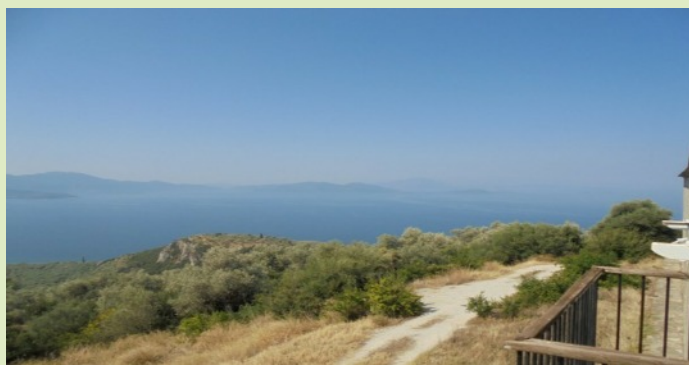


Website : <http://www.mikrobiokosmos.org/>  
Contact: [info@mikrobiokosmos.org](mailto:info@mikrobiokosmos.org)

### *A few words about the 1st Summer School of MIKROBIOKOSMOS:*

**T**HE HELLENIC SOCIETY of MIKROBIOKOSMOS was founded in 2008 and next year will celebrate its 10-year anniversary in the scientific community of Greece. We take this opportunity to organize the first Summer School of Mikrobiokosmos with the hope and aim that this will become the first of a series of following up Training Events for the young members of the Society. The title of the Summer School "The role of microbiome in ecosystem functioning, food security, human health and environmental protection" is a reflection of the major advances and state of the art research in microbiology which have highlighted the key role of microbiome

**V**ENUE: The Summer School will be hosted in the Conference and Culture Centre of the Monastery Paou, Argalasti Pelion (<http://mpaou.uth.gr/en/>) which belongs to the University of Thessaly.



**A**TTENDEES: The Summer School aims to attract PhD students which study the microbiome at different environmental matrices or the symbiome of different organisms (insects, animals, humans). The students attending the Summer School will be offered accommodation in the double bedrooms of the Monastery (include en-suite facilities). Lunch and coffee will be offered to the attendees and a social dinner will be organized for the participants on Tuesday the 26th of June 2018 in a local restaurant by the sea.

**L**ECTURES AND PRESENTERS: A list of top class researchers from Greece and abroad working in academia and industry will present topics on aquatic microbiology, metagenomics (sequence based and functional), plant-microbe interactions, human and food microbiome, biorefining processes, synthetic biology and fungal genomics. In view of the increasing interest and use of bioinformatic tools in studying the microbiome, practicals on sequence-based metagenomics, bacterial genome assembly and RNAseq data analysis will be offered to the attendees. You can find a full list of the presenters accompanied by a brief personal description below in the flyer.

**Registration Fees:** A fee of 100 € for members of the Society and 150 € for non-members applies.

**Contact:** Students interesting in attending the Summer School should send a CV and a brief cover letter to the following email [info@mikrobiokosmos.org](mailto:info@mikrobiokosmos.org) with a subject title "Summer School MIKROBIOKOSMOS". **Deadline for submission of expression of interest:** 28th February 2018

More information for the Summer School will be announced and communicated through the website of the Society [www.mikrobiokosmos.org](http://www.mikrobiokosmos.org)



# P R O G R A M

Sunday	24.6.2018	<i>Students Presentations</i>
10:00 -12.00	Arrival of Attendees	
12.00 -14.00	Lunch break	
14.00 -18.00	Short presentations by the students	
Monday	25.6.2018	<i>The microbiome in food security, energy and health</i>
09.30 -10.30	Metataxonomics and metagenomics applied in food microbiology (Kelly Rantsiou, University of Turin, Italy)	
10.30 -11.00	Coffee Break	
11.00 -12.00	CO <sub>2</sub> biorefining processes (Pavlos Christakopoulos, Luleå University of Technology, Sweden)	
12.00 -14.00	Lunch Break	
14.00 -17.00	Practical I Bioinformatics - "Analysis of RNAseq data" (Konstantinos Billis, EMBL, UK)	
Tuesday	26.6.2018	<i>Microbiome and Ecosystem Functioning</i>
09.30 -10.30	Microbial ecology in aquatic ecosystems: the key role of algae and protozoa (Hera Karayanni, University of Ioannina, Greece)	
10.30 -11.00	Coffee break	
11.00 -12.00	Metagenomic analysis of microbiomes across clinical and environmental settings (Kostas Konstantinidis, Georgia Tech, USA)	
12.00 -14.00	Lunch Break	
14.00 -17.00	Practical II Bioinformatics "Sequence-based metagenomics" (PostDoc Konstantinidis lab, Georgia Tech, USA)	
Wednesday	27.6.2018	<i>Microbiome and interactions with plant , insects &amp; other organisms</i>
9.30 -10.30	Disease is the exception, rather than the rule: Plant Immune receptors mimic pathogen virulence targets (Panagiotis Sarris, Foundation for Research and Technology, Greece)	
10.30 -11.00	Coffee Break	
11.00 -12.00	Human microbiome and health (Pilar Francino, FISABIO, Spain)	
12.00 -14.00	Lunch Break	
14.00 -17.00	Practical III - Bioinformatics "Prokaryotic genome assembly and annotation" (Sotirios Vasileiadis, University of Thessaly, Greece)	
Thursday	28.6.2018	<i>Advanced methods for studying the Microbiome and Applications</i>
09.00 -10.00	Exploring the potential of microbial communities through functional metagenomics, enrichments and culturomics (Sebastian Sorensen, NOVOZYMEs, Denmark)	
10.00 -10.30	Coffee Break	
10.30 -11.30	Synthetic biology: Engineered cell factories for industrial production of new products (Georgios Skretas, National Research Foundation of Greece, Greece)	
11.30 -12.00	Coffee Break	
12.00 -13.00	Novel insights into the evolution of fungi using comparative genomics (Dimitrios Floudas, Lund University, Sweden)	
13.00	Closure of the Summer School	



*Top scientists from Greece, Europe and USA coming from both the academic and the industrial sector will present to the students key topics on the role of the microbiome on environmental protection, food security and humans health. In addition practical aspects of omic analysis will be covered from senior postdocs with hands-on experience in bioinformatic analysis of such datasets*



**Dr. Kostas Konstantinidis** joined the School of Civil and Environmental Engineering at Georgia Institute of Technology as an Assistant Professor in November 2007, and holds the Carlton S. Wilder Junior Chair in Environmental Engineering since September 2012. His

education and research interests are at the interface of environmental microbiology with engineering, genomics and computational biology. The overarching goal of his research is to broaden our understanding of the genetic and metabolic diversity of the smallest organisms on the planet, the bacteria and archaea, and the role of this diversity for ecosystem function and resilience to natural as well as anthropogenic perturbations. He has published more than 82 peer-reviewed articles, ten in PNAS alone, and six book chapters in these research areas, which have received in excess of 6,500 citations. He has received several national and international distinctions and awards for his work, including the 2010 Skerman Award.

**Dr Hera Karayanni** received her PhD in



Oceanology from the University Aix-Marseille II, France in 2004. In 2011 she was appointed in the Department of Biological Applications and Technology,

University of Ioannina, where she now works as Assistant Professor of Hydrobiology. Her research interests focus on the factors that shape community structure of aquatic microorganisms (prokaryotes and unicellular eukaryotes) and their impact on ecosystems through their role in food webs. Her work incorporates both field and laboratory studies and employs a polyphasic approach which combines classic microbiological and next generation sequencing techniques.



**Dr Kalliopi Rantsiou** is Associate Professor in Food Microbiology in the Department of Agricultural, Forestry and Food Sciences (DISAFA), University of Turin, Italy. Her research interests concern molecular biology and physiology of foodborne pathogens, as well as culture independent

methods to study food microbiota and its impact on intestinal microbiota. She is co-author of more than 100 papers in national and international journals. She is a member of the editorial board of the International Journal of Food Microbiology, Heliyon and Frontiers in Microbiology, Section Editor (Food Microbiology) for the Italian Journal of Food Science and *ad hoc* reviewer for major food microbiology scientific journals.

**Dr Maria Pilar Francino** studied Biology at the National University of Mexico and then pursued graduate studies at the University of Rochester (New York), where she obtained her Ph.D. with her research on analyses of rates and patterns of



DNA sequence evolution in bacteria and primates. She conducted postdoctoral research in bacterial genetics as an EMBO Fellow at the University of Paris. She served as Research Scientist at the U.S. Department of Energy, JGI for five years, and was Head of their Evolutionary Genomics Program from 2007 to 2009. Since 2009, she is a Senior Scientist at the Genomics and Health Department of FISABIO-Public Health in Valencia, and has been Head of the Department since 2012. Her current research focuses on the metagenomic analysis of human microbiome communities, in particular on understanding the development of the gut microbiota. Work in her research group studies this process by analyzing the taxonomic composition, coding capabilities and gene expression patterns of the gut microbial community at different life stages, as well as the relationships of these features with health.

**Prof. Paul Christakopoulos** works in the area of Biochemical Process Engineering focusing on the development of biochemical (Green Chemistry) processes for the production and refinement of chemicals, fuels and material from CO<sub>2</sub>, either captured before it is emitted to the atmosphere (non biomass route) or by recovering it from the



atmosphere via photosynthesis in the form of biomass (biomass route). Paul has been appointed Chair Professor of Biochemical Process Engineering at Luleå University of Technology, Sweden, from February 2012. He has previously served as a Professor of Industrial Biotechnology at the School of Chemical Engineering, National Technical University of Athens. He has authored more than 200 articles in peer-reviewed journals.

**Dr. Panos Sarris** is a Principal Investigator at the IMBB-FORTH, head of the Plant Biotechnology and Microbiology Laboratory and Associate Professor at the School of Biosciences, University of Exeter, UK. His scientific interests are mainly focused on the elucidation of the molecular plant-pathogens interactions



and the function of the plant innate immunity system in diseases resistance. He is a scientific committee member in various international journals and he has served as an evaluator of European and British research grant proposals. He has participated in Greek (GSRT), British (BBSRC, GATBY) and European (EC FP7-2011-IEF) competitive programs, as a participant and as a coordinator. He has published various articles in scientific journals of a very high impact such as: Science, Cell, Nature Comms, PLoS Genetics, PLoS Pathogens, BMC Biology, and others.

**Dr. Sebastian R. Sørensen** is an environmental microbiologist with more than 20 years of combined R&D and management experience. He is an expert in applied bacteriology aimed at



developing biotechnological solutions for a broad range of different applications. Currently he is a senior research scientist in Department of Microbial Bioprospecting at Novozymes A/S, where his research is focused on functional biodiversity discovery using tools such as culturomics and metagenomics”.



**Dr Georgios Skretas** graduated from the School of Chemical Engineering of the National Technical University of Athens (Greece) and received his PhD in Chemical Engineering from Princeton University (USA). He then moved on to the University of Texas at Austin (USA) to carry out post-doctoral research training. Since 2009, Dr.



Skretas has been the principal investigator of the Laboratory of Enzyme & Synthetic Biotechnology at the Institute of Biology, Medicinal Chemistry & Biotechnology of the National Hellenic Research Foundation (Greece), where he currently holds the rank of Research Associate Professor. His main research interests focus on (i) Protein misfolding and aggregation (ii) Molecular evolution of compounds with potentially therapeutic effects against protein misfolding diseases, such as Alzheimer's disease, amyotrophic lateral sclerosis, and cancer. Development of novel protein-based tools for applications in synthetic biology (iii) Production of hard-to-express recombinant proteins, such as human integral membrane proteins, in microbial cells (iv) Discovery of thermostable hydrolytic enzymes of industrial interest using metagenomic approaches and directed protein evolution (v) Development of biosensors of protein conformations and dynamics.

**Kostantinos Billis** is a developer for Ensembl gene build in EMBL. He has significant experience with the Ensembl gene annotation system and transcriptome analysis, and has produced gene annotation for a number of vertebrate species. He has contributed significantly to Ensembl's



clade annotation projects for rodents and primates. Prior to his work in EMBL he spent 3 years in the Joint Genome Institute (JGI) having as a major responsibility the management of expression data projects.

**Dr Dimitrios Floudas**, has a first degree in Biology from the University of Athens, a PhD from Clark University (MA, USA). He is currently working as a postdoctoral research at Lund



University (Sweden). His main research interests in the genomic and phylogenomic analysis of fungi in order to answer questions like "How have the nutritional strategies of fungi evolved over time?" "How are they related to each other?". He is currently working towards a deeper understanding of the functional and evolutionary connections between litter decomposers and wood decayers in mushroom forming fungi.

**Dr Sotirios Vasileiadis** studied Agricultural Science in Greece (Aristotle Univ. Thessaloniki) and then followed postgraduate studies in the Netherlands (MSc, Wageningen UR/NIOO-KNAW, Wageningen/Heteren) and Italy (PhD, Università Cattolica del Sacro Cuore, Piacenza). He was then worked as post-



doc fellow in the University of Adelaide on metal interactions with soil microorganisms. During his postgraduate studies, he was trained in the fields of plant-microbe interactions and microbial molecular ecology (MSc), and stress microbial ecology and pesticides risk assessment (PhD). In his PhD and post-doctoral studies (University of South Australia, University of Thessaly since 2017 as a Marie Curie Fellow) he specialized in sequence-based screening of (meta-)genomes/transcriptomes via high-throughput sequencing approaches. Sotirios' research interests reside in the areas of: stress microbial ecology; antibiotic resistance in built and natural environments; microbial control of the levels of persistent organic molecules with toxic potential *in vitro* and *in situ*.