6th to 11th November 2023

Sophia Antipolis France

INTERNATIONAL AUTUMN SCHOOL

ON PROSPECTIVE MODELING AND CLIMATE CHANGE

Energy & Water Issues

PARTICIPANTS' HANDBOOK

MINES PARIS | PSL | Centre de Mathématiques Appliquées

TTI.5° The Transition Institute

etsap ENERGY TECHNOLOGY SYSTEMS ANALYSIS PROGRAM

CONTENTS

Welcome!

You are participating to the **International Autumn School** on

« PROSPECTIVE MODELING AND CLIMATE CHANGE: ENERGY AND WATER ISSUES »

organized by **The Transition Institute 1.5** (TTI.5) and the **Center for Applied Mathematics** (CMA Mines Paris – PSL), and supported by **ETSAP** (Energy Technology Systems Analysis Program),

which takes place from November 6 to November 11, 2023 at Campus Pierre Laffitte, Mines Paris - PSL, Sophia Antipolis, France.

This short booklet is intended to provide you with useful informations about your week at the Autumn School.

A FEW WORDS...

... about the Autumn School

In light of the escalating challenges raised by **climate change** and the pursuit of **Sustainable Development Goals**, comprehending the **intricate relationship between energy usage and water resources** becomes crucial. Climate change intensifies the depletion of water sources, directly affecting energy production, distribution, and efficiency.

On the other hand, the energy sector relies heavily on water resources for essential processes, impacting water availability and quality. To tackle these complex dynamics, **prospective modeling** emerges as a powerful tool, enabling us to gain deeper insights and develop effectively.

The **International Autumn School on « PROSPECTIVE MODELING AND CLIMATE CHANGE: ENERGY AND WATER ISSUES »** targets **young international Ph.D. students**, as well as **professionals**, and is designed to guide them in identifying **methodological keys** for drawing up **energy transition policies** compatible with **climate and water issues**. The overall aim of the Autumn School is to present **prospective modeling tools** and their use. The focus of this editions will be on the **water-energy nexus challenges**.

Hence, this Autumn School aims to enrich the participants' discourse on this crucial subject. **Distinguished experts**, **researchers**, and **Ph.D. students** will gather to present their **groundbreaking work and visionary projects**. Our program seeks to mobilize **as many disciplines as possible** to enable you **to develop a systemic vision** of the water-energy nexus challenges.

PROGRAM

DAYS 1-2-3

	Monday, November 6		Tuesday, November 7		Wednesday, November 8	
	GROUP 1 + GROUP 2 *Mozart Amphitheater*		GROUP 1 + GROUP 2 *Mozart Amphitheater*		GROUP 1 + GROUP 2 *Mozart Amphitheater*	
8:00-9:00	**Opening speeches**					
9:00-10:00	**Nadia MAÏZI** Prospective : philosophy history and models		**Gilles GUERASSIMOFF** Interplay of Water and Energy: A Tale of Technological Partnership		**Nicolas SERVEL** Can we still save our most precious resource, water?	
10:00-11:00	**Nicolas FLIPO** Water Resources in a Changing Environment		**Richard CONNOR** Water, Climate Change and Energy		**Tomás DE OLIVEIRA BREDARIOL** A global view of the water-energy nexus	
11:00-11:20	COFFEE BREAK		COFFEE BREAK		COFFEE BREAK	
11:20-12:20	**Anna KROOK-RIEKKOLA** System Analysis		**Kangkanika NEOG** Policy Coherence in India's Electricity-Water Nexus		**Nathalie HILMI** The evaluation of the socio-economic impacts of climate change and ocean acidification	
12:20-14:00	LUNCH BREAK		LUNCH BREAK		LUNCH BREAK	
14:00-15:00	**Anna KROOK-RIEKKOLA** Developing coherent scenarios to explore sustainable energy transition pathways with TIMES models		**David COATES** The ecosystem-water relationship and its role in the water-energy nexus		**Kangkanika NEOG** Interconnected Challenges and Solutions: Analyzing India's Water-Energy-Food Nexus	
15:00-16:00	**Evangelos PANOS** Hydrogen as an energy carrier: modelling challenges in assessing its role towards a CO2-free and flexible energy system		**Patrícia FORTES** Water competition through the 'water-energy' nexus: Assessing the economic impacts of climate change in a Mediterranean context		**Pernille SELJOM** The role of end-users in the transition of the energy system	
16:00-16:15	COFFEE BREAK		COFFEE BREAK		COFFEE BREAK	
16:15-17:30	GROUP 1 *Room E106*	GROUP 2 *Room E109*	GROUP 1 *Room E106*	GROUP 2 *Room E109*	GROUP 1 *Room E106*	GROUP 2 *Room E109*
	Edi ASSOUMOU & Sandrine SELOSSE Workshop on TIMES model	Daily restitution	**Edi ASSOUMOU & Sandrine SELOSSE** Workshop on TIMES model	Daily restitution	**Edi ASSOUMOU & Sandrine SELOSSE** Workshop on TIMES model	Daily restitution
17:30 - 18h15						
19:30 - 22:00					Social Dinner at restaurant in Antibes	

PROGRAM

DAYS 4-5-6

	Thursday, November 9		Friday, November 10		Saturday, November 11
	GROUP 1 *Room E106*	**GROUP 2** *Room E109*	**GROUP 1** *Room E106*	**GROUP 2** *Room E109*	
8:00-9:00					10:00-12:00 Visit of the Oceanographic Museum of Monaco (Departure at 8:45)
9:00-10:00	**Edi ASSOUMOU & Sandrine SELOSSE** Workshop on TIMES model	**Tania LOUIS** Scientific communication Workshop	**Edi ASSOUMOU & Sandrine SELOSSE** Workshop on TIMES model	**Tania LOUIS** Scientific communication Workshop	
10:00-11:00					
11:00-11:20	COFFEE BREAK		COFFEE BREAK		
11:20-12:20	**Sophie DEMASSEY** An overview of combinatorial optimization in water management	**Tania LOUIS** Scientific communication Workshop	**Valentina SESSA** Machine learning for the prediction of the hydropower generation in Europe	**Tania LOUIS** Scientific communication Workshop	
12:20-14:00	LUNCH BREAK		LUNCH BREAK		12:30-14:30 Lunch at a restaurant in Nice
14:00-15:00	**Markus BLESL** Role of infrastructure to realize the energy transition	**Tania LOUIS** Scientific communication Workshop	**Edi ASSOUMOU & Sandrine SELOSSE** Workshop on TIMES model	**Tania LOUIS** Scientific communication Workshop	
15:00-16:00	**Edi ASSOUMOU & Sandrine SELOSSE** Workshop on TIMES model		**Edi ASSOUMOU & Sandrine SELOSSE** Group project presentation		14:30-16:30 Guided tour of the Old Town of Nice
16:00-16:15	COFFEE BREAK		COFFEE BREAK & CLOSING DISCUSSION		
16:15-17:30	**GROUP 1** *Room E106*	**GROUP 2** *Room E109*			16:30-18h30 Free time in Nice
	Edi ASSOUMOU & Sandrine SELOSSE Workshop on TIMES model	**Tania LOUIS** Scientific communication Workshop			
17:30 - 18h15					
19:30 - 22:00					

A FEW WORDS

... about the program

The International Autumn School **on « PROSPECTIVE MODELING AND CLIMATE CHANGE: ENERGY AND WATER ISSUES »** lasts **six days** (from November 6, 2023 to November 11, 2023) and consists of **five days of lectures and practical group exercizes,** and **one day of social activities**. Activities will include **lectures and conferences**, participant presentations, **reading sessions**, and **workshops**. A **social dinner** is planned on Wednesday, November 8 evening and social activities will be organized on Saturday, November 11 **[SEE PAGES 23].**

GENERAL LECTURES

The first 3 days of the Autumn School will be devoted to general lectures, presenting the **challenges of prospective modeling, energy system issues**, and the **water-energy nexus**. Some lectures will also be devoted to introducing the **TIMES family of models**. Lectures will present **various country perspectives** on long-term energy and climate issues. At a different level, speakers will emphasize the relevance of the water-energy nexus challenges.

WORKSHOPS

Those sessions, using **TIMES models**, will allow participants to discover the model (for beginners) or to exchange on their ongoing work if they are already advanced TIMES users. A **prospective study project** will be conducted, and students will have to work on it in groups during the week. The last half-day will be dedicated to an **oral presentation** of this project and possibly the first draft of an academic paper for submission to an **international peer-reviewed journal** (the most advanced proposal(s) may be continued in collaboration with the organizers up to the submission).

DURING THE AUTUMN SCHOOL, **2 SEPARATE WORKSHOPS** WILL BE ORGANIZED. THEREFORE, THE PARTICIPANTS WILL BE DIVIDED INTO **2 GROUPS**

THE PARTICIPANTS COMPOSING **GROUP 2** ARE THE **TTI.5 PHD STUDENTS**

GROUP 1: Practical sessions on prospective modeling using TIMES

Spurred by issues of climate change and economic globalization, prospective modeling is being considerably reinvested following years of neglect. The connections it makes between numerical/quantitative projection, mathematical economics, public economy, and strategic thinking make it **a valuable tool in the context of international negotiations on climate**.

The renewed interest in this subject is an opportunity to present the range of analyses and prospective elements developed using the TIMES family of models to **build informed energy policies compatible with climate challenges** and in line with the chosen direction of society.

A variety of different research environments uses the TIMES family of models, the topic is **multi-disciplinary,** and many TIMES modeling teams/groups are small. To be an adept user of comprehensive energy system optimization models like TIMES requires expertise on the system in **focus, operation research and economics**, coupled with knowledge about what **policymakers** need.

In the context of **energy transition** and using concrete examples, we will explore how these tools, which bring into play **applied mathematics and economics skills,** have become an essential aid to prospective reflection on **policies to fight climate change**. In other words, we intend to understand the mechanisms underlying ambitious contemporary energy policies at work in selected countries using studies carried out by local, and national **ETSAP teams** partnering with the project.

GROUP 2: Scientific Communication Workshop

Research activities give birth to **new knowledge,** which then must be shared with **various audiences**, not only fellow experts of the field. But transmitting and exchanging ideas with non-specialists is not an easy task! This workshop, combining the presentation of different tools and approaches with several sessions of practical work, will allow you to **develop your scientific communication skills**. Be prepared: an emphasis will be placed on oral communication.

SPEAKERS

... in alphabetical order

Edi ASSOUMOU
CMA Mines Paris - PSL, France

Dr. Edi Assoumou has been a researcher at the Mines Paris – PSL Centre for Applied Mathematics (CMA) in France since 2007. His research activities focus on energy system analysis and the development and articulation of models of different spatial and temporal resolutions. Edi has been involved in several EU and French projects where his research has covered sustainable transport, urban energy systems, energy and lifestyles, power systems transition, flexibility in gas systems, and Life Cycle Analysis. In particular Edi is an experienced TIMES modeler and coordinates the development of the French TIMES model and its sectoral modules as well as the EU power system model.

Markus BLESEL
IER Stuttgart, Germany

Prof. Dr. Markus Blesl is head of the System Analytical Methods and Heat Market (SAM) department at the Institute for Energy Economics and Rational Energy Application (IER), part of the University of Stuttgart. He graduated in physics from the University of Stuttgart in 1995 and obtained his PhD on spatially high-resolution modelling of local energy systems from the same university in 2002. In 2014, he habilitated with a thesis entitled, “Combined Heat and Power Generation in the Heat Market of Germany and Europe – an Energy System and Technology Analysis” and received the venia legendi for Energy System and Technology Analysis. His main areas of work include the analysis and evaluation of energy technologies for coupled and uncoupled power and heat generation, as well as the further development and application of energy system models.

SPEAKERS

David COATES
UNESCO, Scotland

Dr David COATES' early research was on the biological control of vectors of human diseases (malaria and schistosomiasis) associated with irrigation schemes in the Nile Basin, Sudan. He then worked in the field for 11 years with the FAO, on fisheries, environment, river basin management and food security. He was Chief Technical Adviser for water resources and fisheries with the Mekong River Commission followed by team co-ordinator for a GEF project mainstreaming biodiversity and environmental considerations into the fisheries, agriculture, and water resources sectors in the lower Ganges River Basin (Bangladesh). David then spent 14 years at the Secretariat of the Convention on Biological Diversity, based in Montreal, where he led the work on water, food, and energy, and was senior representative to UN-Water. He has been an active contributor to the *World Water Development Report* Series including lead adviser on the 2018 edition on *Nature Based Solutions*. He is now an independent adviser continuing his interest in the relationships between biodiversity, ecosystems, water, food, energy, and sustainable development.

Richard CONNOR
UNESCO, Italy

Richard (Rick) Connor is an environmental scientist and internationally recognized expert on global water issues, including water resources management and governance, water's role in climate change adaptation and mitigation, valuing water, nature-based solutions, and the water-energy nexus. Over the past ten years, he has been Editor-in-Chief of the United Nations World Water Development Report, the UN system's annual flagship report on water. Prior to joining UNESCO's World Water Assessment Programme in 2012, Rick worked on a variety of projects for the North American Commission for Environmental Cooperation, the World Water Council, the Co-operative Programme on Water and Climate (Netherlands), the OECD, and the Governments of Quebec, Mexico and Japan, among others. Rick holds an M.Sc. in environmental biogeochemistry from McGill University in Canada.

SPEAKERS

Tomás DE OLIVEIRA BREDARIOL
International Energy Agency, Brazil

Tomás de Oliveira Bredariol is an Environmental Engineer with a Master in Public Policies, Strategies and Development. He leads the analysis on the water energy nexus in the International Energy Agency and has authored a number of pieces on the subject, looking at how Clean energy can help to ease the water crisis, ways of Reducing the impact of extractive industries on groundwater resources and related topics. Prior to his arrival at the IEA, he worked as a Policy Officer in the Brazilian Institute of the Environment and Renewable Natural Resources, Environmental Permitting Directory, where he was responsible for environmental impact assessments, modelling evaluation and follow-up activities related to the permitting of offshore oil and gas undertakings.

Sophie DEMASSEY
CMA Mines Paris - PSL, France

Sophie Demassey has been an assistant professor at Mines Paris – PSL in the Centre for Applied Mathematics (CMA) since 2014. She received her PhD in Computer Science from the University of Avignon in 2003 and was, between 2005 and 2012, an assistant professor at Mines Nantes, head of the master program in “Computer Science for Decision Making”. Her main research interests are in combinatorial optimization, focusing on decomposition in mathematical programming, hybridization with constraint programming, and, more recently, on bilevel programming and nonconvex systems. Sophie Demassey is now committed to dealing with decision problems for sustainability, energy savings, and water management.

SPEAKERS

Patrícia FORTES
CENSE, Portugal

Patrícia Fortes is a research fellow in the field of energy economics and coordinator of the energy and climate research area at the Center for Environmental and Sustainability Research (CENSE) of NOVA University (Lisbon). Her research explores the transition to low carbon energy systems, focusing on technological changes, energy-climate policies analysis, the feedbacks between the energy system and the macroeconomy and the design of socio-economic and emissions scenarios. More recently she has been working in the vulnerability and adaptation of energy systems to climate change, and the competition for water. She has around 15 years of experience in energy system and computable general equilibrium modelling, in particular the linkage between the technological TIMES and the economic GEM-E3 models for Portugal. She has worked in the Joint Research Center of Seville of the European Commission (2015) in the development of the POTEnCIA (Policy Oriented Tool for Energy and Climate Change Impact Assessment) model and cooperated in multiple national and international research projects on energy-economy-environment modelling. She has also extensive experience on energy-climate policy support. She has a PhD in Environment from NOVA University of Lisbon (2014).

Nicolas FLIPO
GEOSCIENCES Mines Paris - PSL, France

Nicolas Flipo is a hydrologist and a research director at GEOSCIENCES Mines Paris-PSL. Nicolas Flipo's areas of expertise include hydrology, hydrogeology, biogeochemistry, and numerical modeling. In June 2013, he obtained his Habilitation à Diriger des Recherches, focusing on «Modeling continental hydrosystems for sustainable water resource management.» This summarizes his three main research themes: Modeling hydrosystems, Impact of anthropogenic activities on water quality:and Interfaces (environmental interactions , human-territory relationships)...

SPEAKERS

...Nicolas Flipo employs approaches that combine field instrumentation with numerical modeling. He coordinates the development of quantitative modeling tools for the water cycle (CaWaQS, EauDyssée) and biogeochemical modeling of rivers (ProSe), as well as the development of in-situ monitoring platforms for groundwater-river exchanges in the medium term. Since 2011, he has been responsible for the «aquifer-river interfaces» research axis of the PIREN Seine research program, of which he became the Director in 2015. In 2012, he joined the Scientific Definition Team of the international SWOT (Surface Water Ocean Topography) project led by NASA, CNES, and the Canadian Space Agency. He is a member of the scientific boards of GIS ORACLE and GIP Seine Aval. Nicolas Flipo is also an author of numerous scientific publications and serves as a reviewer for prestigious international journals such as «Global Biogeochemical Cycles,» «Water Resources Research,» «Journal of Geophysical Research,» and «Journal of Hydrology.»

Gilles GUERASSIMOFF
CMA Mines Paris - PSL, France

Gilles Guerassimoff is a full Professor at Mines Paris – PSL, Deputy Director of the Centre for Applied Mathematics (CMA), Director of the Master of Advanced Studies Specialised in Energy Systems Optimisation and Co-Director of the Master of Climate Change and Sustainable Finance, a double degree with EDHEC Business School. He has a long experience in training and managing educational programs in close relation with academics and industrials and gives lectures on energy systems for several institutions. His expertise in energy system modelling, control and prospective led to several project for the modeling of energy systems in order to make prospective studies for decision making or algorithms design for the automation in smart cities.

SPEAKERS

Nathalie HILMI
Centre scientifique de Monaco, Monaco

Dr Nathalie Hilmi is an expert in Macroeconomics and International Finance. In 2010, she joined the Centre Scientifique de Monaco as head of the section « environmental economics » and collaborated with IAEA's Environment Laboratories to initiate correlation studies between environmental sciences and economics to better evaluate the socioeconomic extent of impacts and costs of action versus inaction with regard to carbon emissions. She is in charge of the coordination for the preparation and organization of the workshop series "Bridging the gap between ocean acidification impacts and economic valuation" held in Monaco every two years. She passed her post-doctoral degree (HDR) in 2011 about "a muldisciplinary approach of sustainable development". She is lead author for IPCC Special Report on the Ocean and Cryosphere in a Changing Climate (SROCC) and IPCC main report AR6. She is also lead author for MAR1, the first Mediterranean Assessment report by MedECC.

Anna KROOK-RIEKKOLA
Luleå University of Technology, Sweden

Anna Krook-Riekkola is an Assistant Professor at Luleå University of Technology (LTU) in Sweden. Her field of research is energy system analysis and modelling with a focus on long-term energy and climate policy assessment. She has worked with the MARKAL/TIMES modelling framework since 2001 and developed TIMES-Sweden – an energy system optimization model of the comprehensive Swedish energy system – first as a part of a European model within two EU projects and then as part of her PhD. Her work also includes methodological modelling, e.g. linking national CGE models with TIMES-Sweden, and developing a generic TIMES-city model (ongoing EU project). She has worked with EU energy system evaluation (at the EU Joint Research Centre in the Netherlands), and has provided policy support to the Swedish government and the Swedish EPA using TIMES-Sweden to explore climate-neutral pathways. Her teaching experience includes courses own sustainable energy systems, environmental systems analysis and sustainable development.

SPEAKERS

Tania LOUIS
Freelance Science Communicator, France

Doctor in biology and science communicator, Tania Louis has been dedicated to sharing science since the beginning of her doctoral studies. Alumni of the École normale supérieure – PSL, she holds a PhD in fundamental virology from the University of Montpellier. She has been involved in science outreach activities for more than 10 years, first as a volunteer, then as an employee and finally as a freelancer sincer 2020. Tania Louis launched a YouTube channel in 2015 and published several books, she is actively involved in numerous conferences and outreach events. She also offers professional training to science communication and mentors young researchers who want to make their work more accessible.

Nadia MAÏZI
CMA Mines Paris – PSL, France

Nadia Maïzi, Professor at Mines Paris-PSL, is an expert in energy system modeling, optimization and prospective analysis. She is the Co-Director of the Mines Paris – PSL Chair Modeling for Sustainable Development and has been acting as French delegate on the ETSAP (Energy Technology System Analysis Program) run by the IEA (International Energy Agency) since 2008. She is also Head of the Mines Paris – PSL delegation for the UNFCCC (United Nations Framework Convention on Climate Change) since 2009. In addition, Professor Maïzi is Head of Studies for the Advanced Master's degree OSE (Energy Systems Optimization) of Mines Paris – PSL. She is co-author of the 6th IPCC report. Since 2022, Nadia Maïzi has been Director of The Transition Institute 1.5.

SPEAKERS

Kangkanika NEOG
Council on Energy, Environment and Water, India

Kangkanika is an experienced water policy professional with a strong background in sustainable water management. She is currently a Programme Associate at the Council, focusing on climate-smart agriculture, policy coherence in the water-energy-food nexus and climate adaptation. With over eight years of diverse experience at CEEW (Council on Energy, Environment and Water) and as an independent consultant, she has researched topics such as agriculture water management, urban water management, particularly the circular economy of wastewater, policy coherence and irrigation management. Kangkanika holds a Master's in Environmental Studies and Resource Management from TERI School of Advanced Studies. She is committed to driving climate adaptation in agriculture and finding innovative solutions for water challenges.

Evangelos PANOS
Paul Scherrer Institute, Switzerland

Dr. Panos Evangelos has graduated from the University of Patras in Greece, Department of Computer Engineering and Informatics and he holds a PhD degree in Operations Research and Software Engineering from the National Technical University of Athens in Greece. He is specialized in operations research methods and mathematical programming in the domain of energy systems modelling. He has also accumulated experience in the design of database systems and decision support systems for GAMS-based models. In the Energy Economics Group at PSI, Dr. Panos Evangelos is working with the Global Multi-regional MARKAL (GMM) model for the development of Global Energy Scenarios for the World Energy Council, with the Swiss TIMES energy systems model (STEM) for the analysis of the Swiss energy system under different energy and climate policies, and with the bi-level electricity model (BEM) to analyse investment and market behaviour of power utilities. In addition, he is contributing to the IPCC WGIII Scenario Database and the Integrated Assessment Modeling Consortium (IAMC) with the global integrated assessment MERGE-ETL model.

SPEAKERS

Pernille SELJOM
Institute for Energy Technology, Norway

Pernille Seljom (PhD) is a senior research scientist at the Institute for Energy Technology (IFE) since 2008 and an Associate Professor at the University of Oslo (UiO) since 2021. She has a Master of Science (2006) in Energy and Environmental Engineering and a PhD (2017) in Operations Research from the Norwegian University of Science and Technology (NTNU). Dr Seljom is an experienced energy system and TIMES modeler, with interests in modelling methodology and interdisciplinary collaboration. In addition to using TIMES to analyze the transition of the energy system, she assists other institutions in developing their own TIMES models. Her current research focus is the role of energy behavior and the future need for short- and long-term flexibility in the low carbon transition.

Sandrine SELOSSE
CMA Mines Paris – PSL, France

Dr. Sandrine Selosse is a researcher at the Centre for Applied Mathematics (CMA) of Mines Paris – PSL. Her research activities focus on long-term modeling of energy systems and the assessment of international energy and climate policy issues, in particular based on the bottom-up world energy system model TIAM-FR (TIMES Integrated Assessment Model). Her research interests are notably oriented towards the modelling of CCUS, CDR, hydrogen, biomass, water, and also, more recently, towards food autonomy versus energy autonomy for regional energy system. She also plays a central role in the running of the Chair Modeling for Sustainable Development, created in 2008, for which she coordinates interactions with industrial partners and organizes events and activities. This collaboration between academic, institutional and industrial actors aims to develop decision-making tools for carbon neutrality challenges. Sandrine is also involved in several research projects and teaches classes on long-term energy system modeling and international climate negotiations.

SPEAKERS

Nicolas SERVEL
SKEMA Business School, France

Nicolas SERVEL is the Director of the MSc Entrepreneurship & Innovation at SKEMA Business School and the Co-Director of the MSc Entrepreneurship & Design for Sustainability. Prior to joining SKEMA in 2017, Nicolas had 20 years of professional experience. He worked for c. 10 years for major Consulting Firms (such as KPMG Strategy, L.E.K. Consulting, In Extenso-Innovation Croissance and Partners in Performance), 5 years as a co-founder of a consulting firm and a freelance consultant and 5 years in Corporate Strategy functions for high growth technology companies listed on the stock market or belonging to major Private Equity firms. Many of his engagements were related to the environmental sector. He worked for example for a cogeneration subsidiary of Suez, Greensync, Water corporation and a few other innovative start-ups in the fields of clean energy and water. He was a volunteer for a local Venture Capital firm and one of the co-founder of the Cambridge University Technology and Entreprise Club.

Valentina SESSA
CMA Mines Paris – PSL, France

Valentina Sessa received a Master's degree in automatic control engineering and a PhD in information engineering from the University of Sannio, Benevento, Italy, in 2010 and 2013, respectively. After a one-year postdoctoral fellowship at the Department of Engineering, University of Sannio, she took up a postdoctoral position at IMPA (Instituto Nacional de Matemática Pura e Aplicada), Rio de Janeiro, Brazil. From August 2015 to June 2017, she was assistant professor at the Department of Electronic and Telecommunications Engineering at the State University of Rio de Janeiro (UERJ), Brazil, where she taught two courses: automatic control and mathematical models for electrical engineering. She joined the Center for Applied Mathematics (CMA) – Mines Paris – PSL in 2018 as research engineer to work on a European Project called Clim2Power. She currently holds a position as an associate researcher at CMA. Ms Sessa's current research interests include analysis of non-smooth dynamical systems, in particular piecewise linear and complementarity systems; modelling and control of power electronic converters; numerical algorithms for complementarity problems; and global optimization. More recently, she has focused her research on machine learning techniques applied to energy problems.

PRACTICAL INFORMATIONS

The Autumn School venue

GEOGRAPHICAL LOCATION

The Autumn School will take place at the **Center for Applied Mathematics** (CMA Mines Paris – PSL).

The address of the CMA is: Campus Pierre Laffite, Building A, 1 Rue Claude Daunesse, 06560 Valbonne, FRANCE **[SEE MAP ON PAGE 22]**.

HOW TO GET TO THE AUTUMN SCHOOL

A bus will be provided to take you to the Autumn School every morning, and it will bring you back to your hotel every evening.

>The address to **catch the bus in the morning is**: 23 Avenue Robert Soleau, 06600 Antibes **[SEE MAP ON PAGE 21].**

Departure at 7:15 AM on Monday, November 6, then departure at 8:15 AM from Tuesday, November 7, to Friday, November 10.

>The address to **catch the bus in the evening** is: 905 Rue Albert Einstein, 06560 Valbonne **[SEE MAP ON PAGE 22]**.

Return at 5:45 PM on Monday, Tuesday and Wednesday, 6:30 PM on Thursday, 4:30 PM on Friday.

We kindly request that you respect the schedule of this bus which has been specially chartered for the autumn school

In the event that you miss the Autumn School bus, you can take the Envibus Line B (Direction: St-Philippe) from the Antibes main bus station [SEE MAP ON PAGE 21] and get off at the "SKEMA" bus stop. Journey time: 45min-60min.

The bus B is free but you must create a badge on your cell phone via the Envibus Ticket app before boarding the bus. On the Envibus Ticket app, you have to create an account and you must purchase the ticket priced at €0.00, which is called 'PASS NAVETTE' or 'CITY SHUTTLES + 100 EXPRESS + LINE A'. When you board the bus, you must scan the QR code near the driver to validate your badge using the 'Envibus Ticket' app. "You will find your Pass in the 'Mes titres' section, under the 'Titres restants."

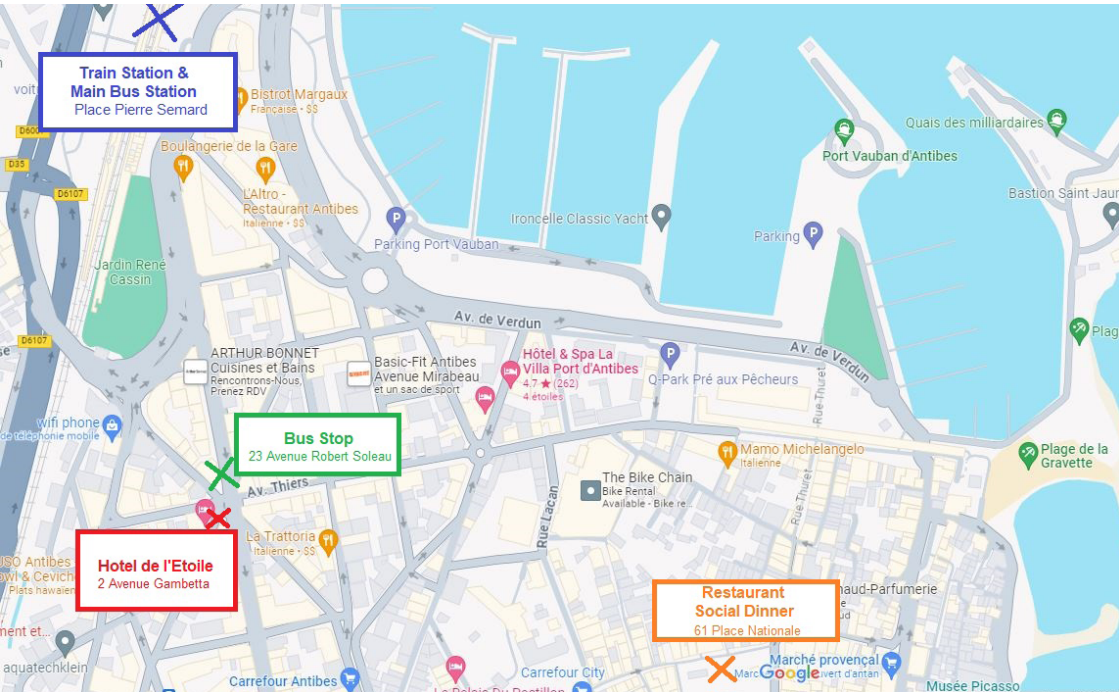
Your accomodation

During the Autumn School, you will be staying at a hotel located in the city of **Antibes**: the « **Hôtel de l'Etoile** ». The address of the hotel is: 2 Avenue de Gambetta, 06600 Antibes.

The **Hôtel de l'Etoile** is located a **5-minute walk** from the Antibes train station and central bus station.

Your reservation at the hotel is from **Sunday, November 5, to Sunday, November 12, 2023.**

The **check-in time** at the hotel is at 2:00 PM. The **check-out time** is at 11:30 AM. You can leave your luggage at the hotel if you arrive earlier.



Should you require any assistance regarding the the hotel, you can contact directly the Hotel de l'Etoile:

- Phone: +33 4 93 34 26 30
- Email: contact@hoteletoile.com
- Website: https://hoteletoile.com/

Your meals

BREAKFAST

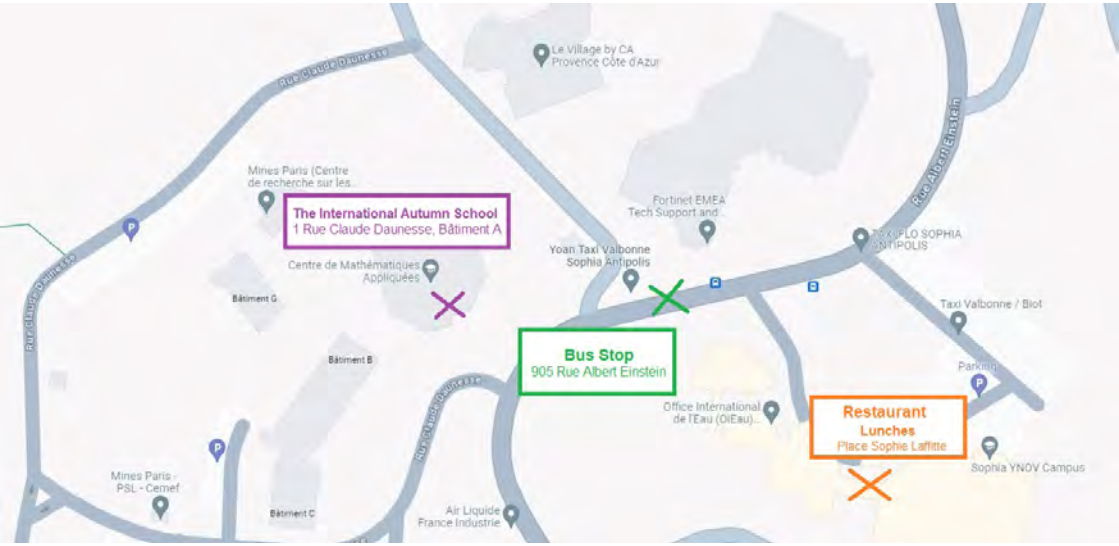
A free breakfast will be served every morning at the hotel (7 AM - 10:30 AM).

Please note that on **Monday, Novembre 6**, breakfast will exceptionnaly be served from **6:30 am** as the Autumn School bus is departing earlier that day (**7:15 am**)

LUNCH

The Autumn School **provides lunches every day** in a restaurant located next to the Autumn School venue. Vegetarian options will be systematically offered.

The address of the restaurant is: « **Ma Dame Nova** », Place Sophie Laffitte, 06560 Valbonne. A room has been specially booked in the restaurant for the participants of the Autumn School.



DINER

All participants must **make their own dinner arrangements** and the Autumn School **will not** cover any expenses related to evening meals (with the exception of speakers).

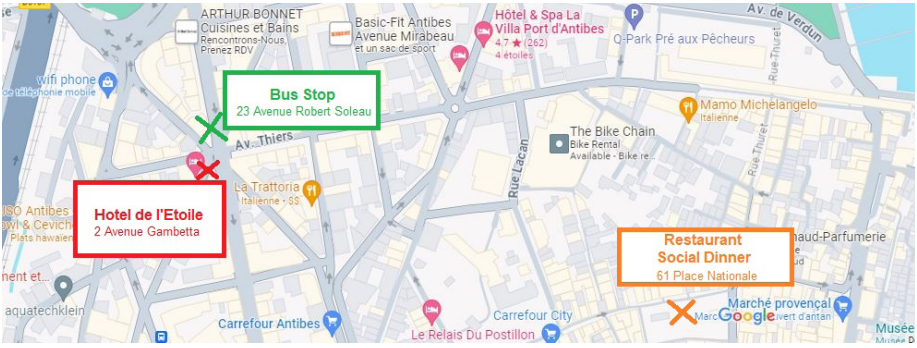
However, the Autumn School is organizing and offering a **Social Dinner** on **Wednesday, November 8**, in a restaurant located in the center of Antibes **[SEE PAGE 23]**.

SOCIAL ACTIVITITES

Social Dinner

WEDNESDAY, NOVEMBER 8

A **Social Dinner** is organized on **Wednesday, November 8 at 7:30pm**, in a restaurant located in the center of Antibes, within a 10-minute walk from your hotel. Address: « **Nacional Trattoria** », 61 Place nationale, 06600 Antibes.



Visits of Monaco and Nice

SATURDAY, NOVEMBER 11

On Saturday, November 11, a **day of social activities** is organized by the Autumn School.

In the morning, at 10 AM, we are offering a guided tour of the **Oceanographic Museum of Monaco**, in English.

After this first visit, we will head to **Nice** for **lunch in a traditional restaurant**. Afterwards, we will take a guided tour of the **historic center of Nice** until around 4:30 PM. After the visit, you will have around **2 hours of free time** before going back to the hotel.

All transportation to reach the various sites is covered:

>The bus will depart from Antibes at **8:45 AM** (The address to catch the bus is: 23 Avenue Robert Soleau, 06600 Antibes (location).

>The return from Nice is scheduled with the same bus at **6:30 PM** (The address where the bus will be parked for the return to Antibes will be communicated to you at a later time).

MEET THE TEAM

...in charge of organizing the Autumn School

Prof. Nadia MAÏZI
Director of CMA Mines Paris - PSL
Director of TTI.5

Dr Naïma CHABOUNI
Post-doctoral Researcher
CMA Mines Paris - PSL

Dr Lucas DESPORT
Post-doctoral Researcher
CMA Mines Paris - PSL

Claire CAUMEL
Project Manager in charge of the coordination of TTI.5

Cédric STANGHELLINI
Communication Officer TTI.5

Alice SPASARO
Administration and scientific dissemination Manager
CMA Mines Paris - PSL & TTI.5

Sabrina BEKLI
Educational Coordinator TTI.5

CONTACT

E-MAIL

tti5@minesparis.psl.eu

OUR WEBSITE

https://tti5-school.cma.fr/