INSTITUT POLYTECHNIQUE DE PARIS

RESEARCH DAY

NUMERICAL MODELING *and* ECOL OGICAL TRANSITION

12.01 2025 *Lecture Hall Thévenin, Télécom Paris (Palaiseau)*

PROGRAM

8:30 am	**Opening doors and welcome coffee**	
9:00 am 9.05 am	**Opening speech**	**Patrick Olivier** Dean of Télécom Paris
9:05 am 9:10 am	**Research address**	**Jamal Atif** VP Recherche & Innovation IP Paris
9:10 am 9.15 am	**Special speech**	**Anthony Briant** Dean of École nationale des ponts et chaussées
9:15 am 9:55 am	**Plenary 1**	*Digital Twins and AI for the Ecological Transition* **Patrick Pélata** Alumni of École Polytechnique and École nationale des ponts et chaussées CEO Meta Strategy Consulting
9:55 am 10:33 am	**Plenary 2**	**Silke Biermann** Head of the Department of Physics at École Polytechnique, Professor at École Polytechnique - CPHT, Co-scientific director M4S, Affiliated to E4C center
10:35 am 11:15 am	**Plenary 3**	*Artificial Intelligence and Rare Event Algorithms to Study Extreme Climate Events and the Resilience of the Power System* **Freddy Bouchet** Director of LMD laboratory, ENS / IPSL,
11:15 am 11:35 am	**Pitch session**	
11:35 am 1:30 pm	**Lunch break, stands, poster session**	

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RESEARCH DAY

PROGRAM

1:30 pm
3:30 pm

Symposium 1
«Climate and meteorology»

LECTURE HALL THÉVENIN

The AI revolution in numerical weather prediction: surrogate models and data assimilation
Marc Bocquet
CEREA - ENPC - E4C

Learning Environmental Representations for Scalable, Long-Term, Tree-Level Forest Monitoring
Loïc Landrieu
LIGM - ENPC

Parametric insurance: challenges and opportunities to reduce the climate insurance protection gap
Olivier Lopez
CREST - ENSAE Paris

Heatwaves in a changing climate: from hazards to impacts
Aglaé Jézéquel
LMD - École Polytechnique

Symposium 2
«Energy»

LECTURE HALL 3

Energy Footprint of Numerical Simulations on Supercomputers
François Trahay
SAMOVAR - Télécom SudParis, E4C

Inter-domain and multi-stakeholders system infrastructure orchestration
Daphné Tuncer
LVMT - ENPC - E4C

The economics of home energy retrofits
Louis-Gaëtan Giraudet
CIRED - ENPC - E4C

Future floating wind turbines: scientific obstacles and contribution of modelling to synthetic anchoring solutions
Yann Marco
IRDL - ENSTA

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Symposium 3
«Transportation & Mobility»

LECTURE HALL 4

Reducing Accessibility Inequality via Flexible Mobility: a Descriptive and Prescriptive Analysis
Andréa Araldo
SAMOVAR - Télécom SudParis

Tackling Car Emissions in Urban Areas: Shift, Avoid, Improve
Marion Leroutier
CREST - ENSAE Paris - E4C

Integrating intermediate modes in mobility research and policy: Prospects and challenges
Virginie Boutueil
LVMT - ENPC

Combinatorial Optimization Augmented Machine Learning for Sustainable Transport and Logistics
Axel Parmentier
CERMICS - ENPC

3:30 pm
4:00 pm

Coffee break, stands

4:00 pm
6:00 pm

Symposium 4
«Models & society»

LECTURE HALL THÉVENIN

Tipping points, climate risks and emission reduction
Peter Tankov
CREST - ENSAE Paris - E4C

Economists, their models, and public policy on energy issues: a retrospective view
Antoine Missemer
CIRED - ENPC

Energy sufficiency in real life: domestic practices in a stratified society. Insights from winter 2022–2023
Claire Le Renard
LATTS - ENPC

Science beyond quantification - integrating objective and subjective views in unpredictable worlds
Ada Diaconescu
LTCI - Télécom Paris

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Symposium 5
«Materials & sustainability»

LECTURE HALL 3

Knowledge gap and data collection and treatment needs for durability evaluation in emerging photovoltaic applications (AgriPV ad FloatingPV)
Polina Volovitch
IPVF - École Polytechnique

Numerical modeling of various phenomena associated with the freezing of cement-based materials
Matthieu Vandamme
NAVIER - ENPC - E4C

From Durability Optimization to Solid-State Recycling: Pathways to Lower Environmental Footprints
Bruno Levieil
IRDL - ENSTA

Thin films for the energy transition: atomic layer deposition, a well-suited technique
Clémence Badie
PMC - École Polytechnique - M4S

Symposium 6
«Water & Environment»

LECTURE HALL 4

Numerical Modeling of Urban Water and Environment: Nature-Based Solutions for Climate Adaptation
Pierre-Antoine Versini
HM&CO - ENPC

Modeling the ecological transition of urban stormwater management
Marie-Christine Gromaire
LEESU - ENPC

Swimming in the Seine
Rémi Carmignani
LHSV - ENPC - E4C

CO2 Extraction from Seawater: from Lab Bench to Ocean Depths
Cédric Tard
LCM - École Polytechnique - E4C