



SPIGL'20



Joint Structures and Common Foundation of Statistical Physics, Information Geometry and Inference for Learning

26th July to 31st July 2020

Registration, Poster Submission: <https://franknielsen.github.io/SPIG-LesHouches2020/>

17 Keynotes (60 min)

- SGD & Variational Inference - Pratik Chaudhari
- Fast MCMC via Lie Group - Steve Huntsman
- HMC on Symmetric/Homogeneous Spaces - Alessandro Barp
- Exponential Family by Representation Theory - Koichi Tojo
- Learning Physics from Data - Francisco Chinesta
- Information Geometry & Integrable Hamiltonian - Jean-Pierre Francoise
- Information Geometry & Quantum Field - Ro Jefferson
- Physical Limits to Information Processing - Susanne Still
- Diffeological Fisher Metric - Hông Vân Lê
- Deep Learning as Optimal Control - Elena Celledoni
- Schrodinger's problem, Hamilton-Jacobi-Bellman equations and regularized Mass Transportation - Jean-Claude Zambrini
- Mechanics of the probability simplex - Luigi Malagò
- Dirac structures in Thermodynamics - Hiroaki Yoshimura
- Port Thermodynamic Systems Control - Bernhard Maschke
- Covariant Momentum Map Thermodynamics - Goffredo Chirco
- Contact Hamiltonian Systems - Manuel de León
- Multibody-Fluid System Dynamics in Lie group - Zdravko Terze

8 Lectures (90 min)

- Langevin Dynamics: Old and News (x 2) – Eric Moulines
- Computational Information Geometry
- Divergence based Machine Learning – Frank Nielsen
- Non-Parametric and Orlicz Spaces – Giovanni Pistone
- Non-Equilibrium Thermodynamic Geometry
- Evolution Equations for Open Systems - François Gay-Balmaz
- An Homogeneous Symplectic Approach - Arjan van der Schaft
- Geometric Mechanics
- Gallilean Mechanics & Thermodynamics of Continua - Géry de Saxcé
- Souriau-Casimir Lie Groups Thermodynamics & Machine Learning – F. Barbaresco

