List of Projects for OIS 2025

Applicants may take reference to this list for possible destinations and projects for OIS. The final list of projects available for summer 2025 is subject to change. It will depend on supervisor's availability and travel restrictions by the host institution/country.

Institution:	Ben-Gurion University Department of Physics
Location:	Israel
Supervisor:	Naamneh, Muntaser https://physics.bgu.ac.il/people/374/
Suggested project(s):	TBC
Remarks:	For PHY students only

Institution:	Central Michigan University Department of Physics
Location:	United States
Supervisor:	Prof. Valeri Petkov http://people.cst.cmich.edu/petko1vg/
Suggested project(s):	• Lattice distortions in strongly correlated systems by total x-ray scattering
Remarks:	For PHY students only. Solid knowledge in condensed state physics/chemistry and basic knowledge in applied crystallography. Good computational skills.

Institution:	Durham University
Location:	United Kingdom
Supervisor:	Prof. Philip Dyer https://www.durham.ac.uk/staff/p-w-dyer/
Suggested project(s):	• TBC
Remarks:	For CHEM students only

Institution:	Ecole Polytechnique Centre de Mathematiques Appliquees
Location:	France
Supervisor:	Prof. Josselin Garnier https://www.polytechnique.edu/en/directory/garnier-josselin
Suggested project(s):	• Sensitivity analysis of interacting diffusion processes with common noise
Remarks:	For MA students only

Institution:	Institute of Physics and Chemistry of Materials of Strasbourg (IPCMS), University of Strasbourg
Location:	France
Supervisor:	Prof. Giovanni Manfredi and Prof. Paul-Antoine Hervieux https://www.ipcms.fr/en/giovanni-manfredi-2/ https://www.ipcms.fr/paul-antoine-hervieux-2/
Suggested project(s):	• Controlling quantum evolutions in the phase space
Remarks:	For MA or PHY students with advanced computational skills

Institution:	National Agriculture and Food Research Organization (NARO)
Location:	Japan
Supervisor:	Dr. Heesoo Eun https://researchmap.jp/read0144256/?lang=english
Suggested project(s):	• Analytical Method Development for PFAS and pesticides
Remarks:	For CHEM students only. Knowledge in Japanese or Korean is a plus.

Institution:	NYU Shanghai
Location:	Shanghai campus
Supervisor:	Prof. Vahagn Nersesyan https://shanghai.nyu.edu/academics/faculty/directory/vahagn-nersesyan
Suggested project(s):	• Control theory and applications to probability
Remarks:	For MA students with solid bases in Analysis, ODE, and probability

Institution:	Paul Scherrer Institute
Location:	Switzerland
Supervisor:	Prof. Milan Radovic https://www.psi.ch/en/lsx/people/milan-radovic
Suggested project(s):	• United Spectroscopy and Material Design: A Method for Advancing Novel Quantum Materials
Past project(s):	• Spectroscopy Study on Novel Quantum Materials • Engineering Mott Physics in Transition Metal Oxides
Remarks:	For PHY students only

Institution:	Polytech Montpellier
Location:	France
Supervisor:	Depending on student's research interest
Suggested project(s):	Depending on student's research interest
Past project(s):	• Spectroscopic data analysis on single-walled carbon nanotube (SWNT)
Remarks:	For all CSCI students

Institution:	Sorbonne University
Location:	France
Supervisor:	Prof. Cristinel Mardare https://sciences.sorbonne-universite.fr/
Suggested project(s):	• Optimal control by functional analysis methods
Remarks:	For MA students only

Institution:	The Institute of Mathematical Statistics
Location:	Japan
Supervisor:	Dr Stephen Wu http://daweb.ism.ac.jp/~stewu/
Suggested project(s):	Project A: Developing systems of large language models for engineering applications Project B: Bayesian inference using Transformer models
Remarks:	For MA students only. Knowledge on statistical modeling and python coding ability preferred.

Institution:	University System of Taiwan (includes National Central University, National Yang Ming Chiao Tung University, National Tsing Hua University and National Chengchi University)
Location:	Taiwan
Supervisor:	Depending on student's research interest
Suggested project(s):	Depending on student's research interest
Past project(s):	• Perform histogram analysis for cisterns in neonatal rats after hypoxic ischemia
Remarks:	For all CSCI students

Institution:	University of Greenwich
Location:	United Kingdom
Supervisor:	Prof. Choi-Hong Lai https://www.gre.ac.uk/people/rep/las/choi-hong-lai
Suggested project(s):	Project A: Laplace transformation and its applications The project concerns the use of Laplace transformation for time dependent ordinary differential or partial differential equations. Typically, the student is required to understand the theory and to continue the work of an existing code which examines the behaviour of the solution process. Essential experience: MATLAB or Python experience; Numerical analysis and some statistics knowledge. Applications of the code can be related to biological systems, heat transfer problems, or option pricing.
	Project B: Machine learning for iterative methods

	Foundation knowledge of iterative methods such as Gauss-Seidel and Successive Over Relaxation for a system of linear equations. The work relates to use machine learning techniques to determine the best parameters in successive over relaxation methods. Essential experience: MATLAB or Python; Some basic knowledge of machine learning.
Remarks:	For MA students only

Institution:	University of Tennessee Department of Physics & Astronomy
Location:	United States
Supervisor:	Prof. Yishu Wang http://www.phys.utk.edu/people/faculty/wang.html
Suggested project(s):	• TBC
Past project(s):	• Magnetic study of Ce2Zn17
Remarks:	For PHY students only. Programming experience with Python is preferred.

Institution:	University of Zurich Institute of Mathematics
Location:	Switzerland
Supervisor:	Prof. Stefan Sauter https://www.math.uzh.ch/en/people?key1=105&key2=2016
Suggested project(s):	Depending on student's research interest
Remarks:	For MA students only