



**POLITECNICO
DI TORINO**

Department of
Environment, Land,
and Infrastructure Engineering

PURDUE
UNIVERSITY

LYLES SCHOOL OF CIVIL ENGINEERING



SUMMER SCHOOL

RheoLab – from theory to application

Politecnico di Torino
June 19-22, 2018

PRESENTATION

The four-days summer school is organized at PoliTO and it is addressed to PhD students from PoliTO, Purdue and other Universities.

RheoLab summer school will have a strong applied character by including, along with the discussion of theoretical concepts, laboratory activities to illustrate some of the rheometrical and microstructural techniques applicable to the characterization of materials with complex internal structure.

Working in teams, the attendees will carry out experimental investigations in the Road Materials Laboratory of DIATI and in the Industrial Chemistry Laboratory of DISAT.

Under auspices of
Società Italiana Infrastrutture Viarie



PROGRAM

June 19th

9:30 – 11:00 (Room DIATI2, P2)	11:15 – 12:45 (Room DIATI2, P2)
Nano-reinforced bituminous binders. Low-temperature and glass transition characterization by means of DSR.	Introduction to aqueous laponite dispersions. Rheology of water-laponite systems. Thixotropy, sol-gel transition and ageing effects.
<i>Lunch</i>	
14:30 – 15:45 (Lab. DIATI)	16:00 – 17:30 (Lab. DIATI)
Preparation of water-laponite dispersions and preliminary testing.	PP-4mm geometry and sample preparation. Conditioning and testing setup.

June 20th

9:30 – 11:00 (Lab. DIATI)	11:15 – 12:45 (Lab. DIATI)
Low temperature testing on nano-reinforced binders and glass transition determination.	De-structuring and re-building measurements on water-laponite dispersions.
<i>Lunch</i>	
14:30 – 15:45 (Lab. DIATI)	16:00 – 17:30 (Lab. DIATI)
Experimental data analysis.	Presentation of results and comparison (challenge).

June, 21st

9:30 – 11:00 (Room DIATI2, P2)	11:15 – 12:45 (Lab. DISAT)
Introduction to micro- and meso-porous materials. Characterization techniques.	FESEM analysis. Theoretical aspects and practical issues.
<i>Lunch</i>	
14:30 – 15:45 (Lab. DISAT)	16:00 – 17:30 (Lab. DISAT)
Fundamentals of XRD analysis.	Physisorption of N ₂ : sample preparation.

June, 22nd

9:30 – 11:00 (Room DIATI2, P2)	11:15 – 12:45 (Lab. DISAT)
Characterization of samples by means of Physisorption of N ₂ – Theory	Physisorption of N ₂ – Data analysis.
<i>Lunch</i>	
14:30 – 15:45 (Lab. DISAT)	16:00 – 17:30 (Lab. DISAT)
Adsorption tests on porous materials (Part 1)	Adsorption tests on porous materials (Part 2)
