

# ECerS SUMMER SCHOOL for students and industrialists

## High and Ultra-High Temperature Ceramics



### Welcome to Torino

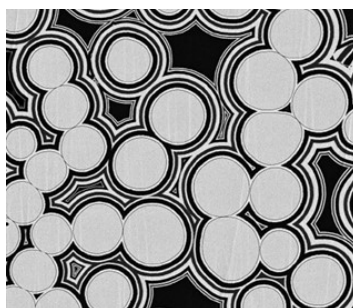
It is a great pleasure to invite you to take part to the 2019 ECerS Summer School : High and Ultra-High Temperature Ceramics which will be held at Politecnico di Torino, Italy, from June 14<sup>th</sup> to June 15<sup>th</sup>, 2019

The aim of this school is to create a forum that brings together students, professors, and industrialists from the high and ultra-high temperature ceramics field in order to develop links and a common language for better research and technological innovations, to define key challenges and open questions to move toward effective solutions.

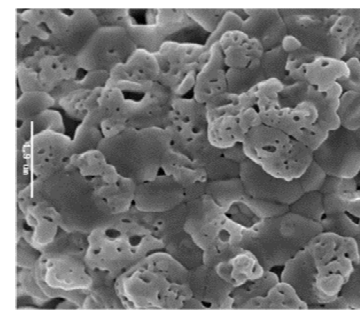
## Ultra refractories

## Thermo-structural composites

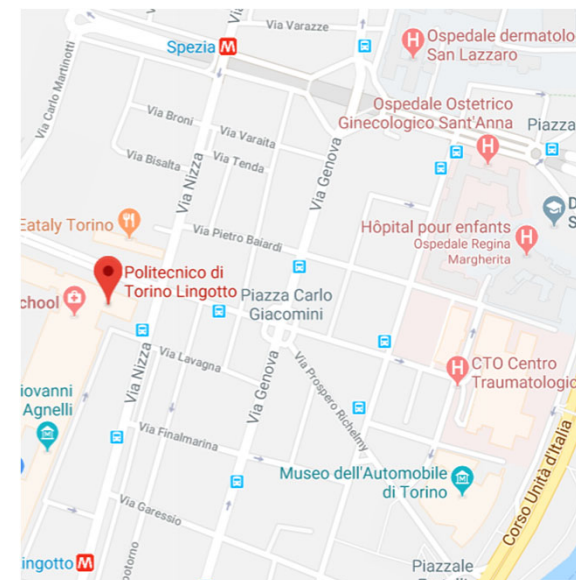
## Refractories



## Reactivity and corrosion



**Venue:** Politecnico di Torino  
Lingotto Building, Via Nizza, 230



## ECerS SUMMER SCHOOL: PROGRAM

### Friday, June 14<sup>th</sup>

#### Design, characteristics, applications and degradation of high and ultra-high temperature ceramics

- Refractories, Ultra-refractories, Ceramic matrix composites

#### Thermodynamics : phase diagram and chemical reaction

- Understanding of phase diagram
- Chemical reactions between solid, liquid and gas
- Computational thermodynamic database

#### Reactivity and corrosion of refractories by liquid and gas

- Reactions, mechanisms, applications

#### Reactivity and corrosion of ceramic matrix composites

- Self-healing in ceramic matrix composites

#### Poster session and group discussion

#### Banquet

### Saturday, June 15<sup>th</sup>

#### Reactivity and corrosion of ceramic matrix composites

- Recent progress of environmental barrier coatings: achievements, open problems and challenges
- Processing of carbon-fibre based UHTCs and thermo-ablative materials
- Testing by oxyacetylene and oxypropane torchs, arc jet testing

#### Reactivity and corrosion of ultra-high ceramics

- Study of the high temperature behavior of ultra-high temperature ceramics and the measurements of emissivity and catalyticity (atmospheric reentry applications of space vehicles)
- Thermo-chemical surface (in)-stabilities of ultra-high temperature ceramics in simulated reentry conditions.
- Entropy stabilized ultra-high temperature ceramics: oxidation and transport properties

#### Group discussion, conclusion, and closing

### Lecturers

Prof. M. Rigaud, Ecole Polytechnique, Canada  
 Prof. J. Poirier, CEMHTI-CNRS, University of Orleans, France  
 Prof. F. Rebillat, LCTS, University of Bordeaux, France  
 Dr M. Balat Pichelin, PROMES-CNRS, France  
 Dr F. Monteverde, ISTEC-CNR, Italy

Prof. In-Ho Jung, Seoul National University, South Korea  
 Dr T. Tonnesen, RWTH Aachen University, Germany  
 Prof. Y. Kagawa, Tokyo University of Technology, Hachioji, Japan  
 Prof. J. Binner, School of Metallurgy and Materials, University of Birmingham, UK  
 Prof. E. Opila, Dpt. of Materials Science and Engineering, University of Virginia, USA

## INFORMATION AND REGISTRATION FORM

**Deadline for registration : May 15<sup>th</sup> 2019**

Online registration form available on the EcerS website:

<http://ecers.org/en/2019-ecers-summer-school.html>

Or registration form to be sent to [school2019@bcrc.be](mailto:school2019@bcrc.be)

**Title/Family name :**

**First name :**

Student or  Professional

**University/Lab/Company :**

**VAT number if any:**

**Street:**

**Zipcode/Town :**

**Country:**

**Phone:**

**Email:**

**Member of :**  European Ceramic Society (ECerS)  
 American Ceramic Society (ACerS)  
 Not member

### Payment

Payment of the registration fee must be done on the following bank account:

IBAN: **BE16 7512 0815 5774**

BIC: **AXABBE22**

With the following reference:

**SummerSchoolECerS2019 – First and Last Name**

### Student registration fees

- 300 euros for Master or PhD, members of ECerS or ACerS
- 400 euros for non members of ECerS or ACerS

### **The student registration fee includes:**

- 2 nights-single room from 13th to 15th June in Camplus Guest Lingotto
- Attendance to the ECerS courses, certificate of attendance, coffee breaks, lunches and banquet
- F.I.R.E Compendium Series : corrosion of refractories (3 books)

### Professional registration fees

- 550 euros for members of ECerS or ACerS
- 650 euros for non members of ECerS or ACerS

### **The professional registration fee includes:**

- Attendance to the ECerS courses, certificate of attendance, coffee breaks, lunches and banquet
- F.I.R.E Compendium Series : corrosion of refractories (3 books)

**No room booking is included in the professional registration fee -** the Organizing Committee recommends two hotels situated near the ECerS Summer School :

- NH Hotel Lingotto
- Double Tree by Hilton Turin Lingotto.