

**SUMMER  
SCHOOL**Photos copyrighted by Provincia di Lecco**INTERNATIONAL SCHOOL OF PHYSICS “ENRICO FERMI”****COURSE 207:****ADVANCES IN THERMOELECTRICITY**  
**Foundational Issues, Materials, and Nanotechnology****Varenna (Italy), July 15–20 2019**

The course aims to provide participants with a modern vision of the physics of thermoelectric phenomena. Moving from the thermodynamics of thermoelectricity and from the physics of transport processes, the course will offer attendants a path showing how materials structure and nanostructure, along with defects, have been used to tailor the properties of advanced thermoelectrics. Special attention will be placed on hot research topics – from spin-caloritronics to charge transport in polymers – and to a selected number of applications for heat recovery as well.

**APPLICATIONS ARE OPEN****Italian  
Thermoelectric Society****COURSE WEBSITE****<http://sites.google.com/unimib.it/varenna-te2019>**

# ADVANCES IN THERMOELECTRICITY



The Enrico Fermi Schools are a highly prestigious series of summer schools of the Italian Physical Society with a tradition of more than 60 years and with many Nobel laureates as lecturers.

The course will be a major occasion for young scientists to learn novel concepts in heat and charge transport physics, and will also provide junior scientists with a non-physics background an introduction to the most advanced theories and the most recent results in thermoelectricity.

## Applications and Registrations

The fees to attend the course are 900€ and include school boarding, proceedings, lodging and meals in Varenna. The

number of students will be limited to 80, so participants will be selected among the applicants in view of their background and motivations. A limited number of scholarships will be available to support some of the participants.

Application forms and details on the application procedure and on how to request a scholarship are available at <https://sites.google.com/unimib.it/varenna-te2019/registrations>

## Important dates

24/04/2019	Deadline for application
14/06/2019	Communication of acceptance
14/07/2019	Arrival in Varenna, Italy

## The Lecturers

*G. Benenti*, University of Insubria, Italy

*C. Fanciulli*, CNR—ICMATE, Italy

*F. Gascoin*, CRISMAT- ENSICAEN, France

*Y. Grin*, Max Planck Institute, Germany

*J. Heremans*, Ohio State University, USA

*K. Koumoto*, Nagoya University, Japan

*B. Lorenzi*, MIT, USA & University of Milano Bicocca, Italy

*D. Narducci*, University of Milano Bicocca, Italy

*N. Neophytou*, University of Warwick, UK

*R. Rurali*, Institut de Ciència de Materials de Barcelona, Spain

*H. Siringhaus*, University of Cambridge, UK

*G. J. Snyder*, Northwestern University, USA

## The Program

	Monday, 15 July	Tuesday, 16 July	Wednesday, 17 July	Thursday, 18 July	Friday, 19 July	Saturday, 20 July
09:00 – 10:00	Thermodynamics of Thermoelectricity	Heat transport in solids	Inorganic-Organic Intercalation Compounds	Thermoelectricity at the nanoscale	Charge and Heat Transport in Organics	Materials processing
10:00 – 11:00	Thermodynamics of Thermoelectricity	Heat transport in solids	Inorganic-Organic Intercalation Compounds	Thermoelectricity at the nanoscale	Charge and Heat Transport in Organics	Materials processing
11:00 – 11:30	Coffee break					
11:30 – 12:30	Thermodynamics of Thermoelectricity	Heat transport in solids	Chalcogenides	Thermoelectricity at the nanoscale	Heat conversion in hybrid solar harvesters	Heat conversion in hybrid solar harvesters
	Lunch					
14:30 – 15:30	Physics of thermoelectric phenomena	Novel Inorganic Materials	Silicon and silicides	Computational Design of Thermoelectrics	Spin-caloritronics	DEPARTURES
15:30 – 16:30	Physics of thermoelectric phenomena	Novel Inorganic Materials	Silicon and silicides	Computational Design of Thermoelectrics	Spin-caloritronics	
16:30 – 17:30	Physics of thermoelectric phenomena	Novel Inorganic Materials	EXCURSION	Computational Design of Thermoelectrics	Spin-caloritronics	
17:30 – 18:30		Design of thermoelectric harvesters	EXCURSION			

## School Board

**Directors:** *G. Jeffrey Snyder*, Northwestern University, USA  
*Dario Narducci*, University of Milano Bicocca, Italy

**Scientific secretary:** *Carlo Fanciulli*, CNR-ICMATE, Italy  
**E-mail contact:** [varenna.te2019@gmail.com](mailto:varenna.te2019@gmail.com)

COURSE WEBSITE

<http://sites.google.com/unimib.it/varenna-te2019>