

# ISTITUTO NAZIONALE DI ALTA MATEMATICA (INdAM)

XLVIII Summer  
School on  
Mathematical  
Physics

## Gruppo Nazionale per la Fisica Matematica (GNFM)

**Ravello**  
**4 - 16 September**  
**2023**

### Courses:

**Jens Eggers**

(University of Bristol)

**"Free surface singularities"**

1a First Week (6 lectures)

**Karima Khusnutdinova**

(Loughborough University)

**"Long nonlinear surface  
and internal waves on currents:  
from 2D to 3D"**

1b Second Week (6 lectures)

**Julius Guccione**

(University of California)

**"Applications of continuum  
mechanics in cardiology"**

2a First Week (6 lectures)

**Alfio Quarteroni**

(Politecnico di Milano and EPFL, Lausanne)

**"Physics-based and data-driven  
mathematical models for the simulation  
of the cardiocirculatory system"**

2b Second Week (6 lectures)

**Luigi Barletti**

(Università di Firenze)

**"Quantum mechanics in  
phase-space and applications  
to quantum transport"**

3a First Week (6 lectures)

**Luis L. Bonilla**

(Universidad Carlos III de Madrid)

**"Quantum electron transport  
in low dimensional devices"**

3b Second Week (6 lectures)

**Miles B. Rubin**

(Technion - Israel Institute  
of Technology, Haifa)

**"Continuum mechanics  
with Eulerian formulations  
of constitutive equations"**

4a First Week (6 lectures)

**Giuseppe Puglisi**

(Politecnico di Bari)

**"Multiscale approaches  
for material science  
in a nutshell"**

4b Second Week (6 lectures)

The school aim is to give introductory lectures by international experts in Mathematical Physics and Applied Mathematics. The school is mainly addressed to young researchers. Four courses will be given in a series of 12 lectures scheduled in the morning of each day.