# ICFO LECTURE SERIES: Introduction to the electronic and optical properties of 2D materials

IACOPO TORRE

March 31, 2022 to April 28, 2022
10:00 to 12:00
BLR & Online (Teams)

The first lectures of this exciting new series i¿½**Introduction to the electronic and optical properties of 2D materialsi¿½** will be given by **Dr. Iacopo Torre**
The lectures will be held on **March 31**, **April 19**, **21** & **28** from 10:00 to 12:00 in the **BLR (351-P3)**, and will also be broadcasted online.

**Overview**
This short series of lecture gives a basic and self-contained introduction to the fundamentals of electronic and optical properties of two-dimensional materials.
The lectures are mainly aimed to PhD students working on these materials, both on theory and experiments, but can be useful to more senior researchers working on different fields, and will be organized according to the following schedule:

**1.Electronic properties of two-dimensional materials 24/3**
Simple tight-binding models for the electronic structure of most common 2D materials, low-energy approximations, densities of states.
**2. Graphene: basic transport and optical properties 31/3**
Transport regimes in graphene, quantum capacitance, optical conductivity of graphene.
**3. Hyperbolic phonon polaritons in hexagonal boron nitride 21/4**
Propagation of light in hyperbolic materials, dielectric constant of hBN, phonon polaritons in simple nanostructures
**4. Thermoelectric effect in graphene 28/4**
Thermoelectric effect, photothermoelectric effect and its application to photodetection and nano-imaging.

**About the speaker**
i¿½I recived my PhD in theoretical condensed matter physics from Scuola Normale Superio e in Pisa (Italy) in 2018. Since then I have been working in the Nano-Optoelectronics Group t ICFO on projects related to the investigation of optical properties of 2D materials.i

½ Participation is open to all ICFOn

ans. If you are unable to attend in person, join us using the following link

**Hosted by:** Academic Affairs