# ICFO LECTURE SERIES: Simple analytical methods in nanophotonics

JAVIER GARCIA DE ABAJO

May 11, 2022 to June 09, 2022
15:00 to 16:30
SMR (201) & Online (Teams)

**Abstract:**
We will discuss several elements that help us model and understand the behavior of light near atoms, molecules, and nanostructures. In particular, we will derive simple analytical expressions for the interactions between light plane waves, dipoles, planar surfaces, and spherical particles. The course is intended to have a tutorial character and does not assume previous knowledge of advanced theoretical methods.
The following specific issues will be covered:

- Overview of classical electromagnetic relations
- Plane waves and dipole fields in homogeneous media
- Dielectric functions, Clasius-Mossotti model, Drude model
- Interaction of dipoles with planar interfaces
- Spontaneous decay and emission
- Linear response theory
- Periodic arrays and lattice resonances
- Electromagnetic forces
- Dielectric response theory
- Interaction of electron beams with nanostructures

Participation is open to all ICFOnians
The lectures will be held in the **SMR (201)** on **May 11, 18** & **June 1, 9** from **15:00-16:30.**
The talks will also be cast online (Teams)

**Hosted by:** Academic Affairs