

Let there be Light

For millennia,
men and
women were
surrounded
by darkness.

Physical darkness materialized every day at sunset and could only be combatted with precious firelight.

Intellectual darkness was a consequence not only of missing knowledge about the mechanisms ruling Nature but also of the lack of a proper and systematic methodology to acquire this knowledge. Moral darkness, difficult as it may be to define, was distinct in a human conscience filled with prejudices and irrationality.

Darkness prevents the full appreciation and enjoyment of the world in any of the levels mentioned above. If darkness encircles us, we cannot easily interact with our environment and we cannot identify the opportunities and threats rendered by it.

Science and knowledge provide us with light. When night falls and we turn on the lights (or now LEDs), we fight against darkness with tools designed through a long and sometimes involved process of developing scientific knowledge. When we visualize the Earth moving around the Sun at a speed of hundreds of thousands of kilometers per hour, when we turn to antibiotics to kill bacteria invading our body, or when we receive TV signals from the other side of the planet, this is illumination on our life concepts and conditions. When a democratic society freely makes a choice basing the decision on just rational and ethical arguments, this is in part a triumph of science and knowledge.



Ricardo Díez Muiño
Director

Light is thus symbolic of science. But, in a more pragmatic perspective, science uses light. Scientific practice is a technical activity in which physical light, the electromagnetic field, the sequence of photons, plays a crucial role. In physics, light is a matter of study as well as a tool used to test and probe a legion of different systems, from atoms and molecules to the latest technologically advanced bulk materials. Light-based technologies are applied everywhere, from medical therapies to communications systems, from renewable energies to the entertainment industry. It will come as no surprise then, that the UN General Assembly proclaimed 2015 as the “International Year of Light and Light-based Technologies”.

Light is present in many of DIPC’s lines of research.

Photoemission-based techniques, attophysics, femtochemistry, photonics, laser applications, optical properties of molecules, surfaces, and nanostructures, electron dynamics, dielectric response of polymers and soft matter, nanoplasmonics, and several other topics related to the electromagnetic spectrum are current subjects of interest to DIPC scientists. At DIPC, then, we celebrate the International Year of Light doing what we have been doing for 15 years: high-level research at the frontiers of knowledge. We believe that enlarging the scientific knowledge of our society is the best way to ensure our social, cultural and economic prosperity. Scientific advances to come in the next decades will greatly change the way we live, the way we work, the way we ask questions and the finesse of the questioning. They will change the world we inhabit and they will change our culture.



Pedro Miguel Echenique
President

The dim glow that our ancestors were able to keep through bonfires and torches was carefully, almost reverentially nursed because it was instrumental in the fight against darkness. Science being one of the lights guiding humankind in its vital endeavor, it is equally important to preserve its development. Scientific research needs sustained and long-term support to progress. The knowledge so obtained is a public good in itself, but is also a necessary condition for economic growth and social progress.

Let there be science, let there be light. ■