



A Roadmap for Light at the Nanoscale

A taskforce chaired by Prof. Goncal Badenes identifies how nanophotonics could develop over the next 5 to 15 years.

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The development of concepts, technologies and devices in nanophotonics during the next few years is envisaged in the "Emerging Nanophotonics Roadmap". This document, released within the framework of the Photonics21 strategic research agenda, has been promoted by the EU Network of Excellence on Nanophotonics (PhOREMOST), composed of 34 partners and over 300 researchers. Prof. Goncal Badenes is the chairman of the taskforce that produced this first attempt to map the rapidly evolving field of nanophotonics.

Nanophotonics harvest new functions and properties of nanostructures and sub-wavelength phenomena, with applications in information and communication technologies, environment, transportation, security, life sciences, etc. The nanometer and molecular scale of materials involved offers advantages like a higher integration and the expectation of less electrical

noise. All the topics included in the roadmap have a high potential impact. They include visible range metamaterials, microcavities, plasmonics, non-linear optical effects in nanostructures, optical trapping and sorting, random lasers, self-assembly of colloidal structures, nanoimprint lithography, infiltration methods, organic-inorganic hybridization, nanophotonic developments of photovoltaics, components for the automobile industry, hybrid waveguides and amplifiers, and plasmonics-based sensors. The roadmap is intended to complement other similar documents and to be a living publication that is regularly updated and revised.