

## Research Project

# Hybrid Molecule-Nanocrystal Assemblies for Photonic and Electronic Sensing Applications

### Third-party funded project

**Project title** Hybrid Molecule-Nanocrystal Assemblies for Photonic and Electronic Sensing Applications

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**Organisation / Research unit**

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**Department**

**Project Website** [www.nanoelectronics.ch](http://www.nanoelectronics.ch)

**Project start** 01.04.2011

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**Status** Completed

Functional organic molecules and metal and semiconductor nanocrystals represent attractive building blocks due to their composition-, size- and structure-dependent electronic properties, and the ability to design and manipulate these properties via low-cost and established chemical synthesis. Building from the pressing need of the European market to develop novel, scalable and cheaper technologies for sensing applications, the main objective of the HYSSENS project is to exploit inexpensive organic functional molecules and inorganic nanocrystals as building blocks to synthesize novel high-knowledge materials for the development of sensors for Group I, II transition metal cations and anions (Cl<sup>-</sup>, NO<sub>3</sub><sup>-</sup>). The hybrid material intelligence resulting from the engineered combination of individual units will allow the execution of logic functions able to reduce false sensing outputs towards the development of sensors with enhanced selectivity and sensitivity. Our goal is to elucidate the mechanisms governing the optical and electrical response of such engineered hybrid materials arising from the interaction between the organic functional molecule component and the inorganic nanocrystal core component. Establishment of component-function relationships will lead to disruptive new knowledge that will impact on optical and electrical sensors technologies.

**Keywords** chemical sensor, optical and electronic sensing

**Financed by**

Commission of the European Union

Add publication

Add documents

Specify cooperation partners

ID	Kreditinhaber	Kooperationspartner	Institution	Laufzeit - von	Laufzeit - bis
2214885	Constable, Edwin Charles	Armaroli, Nicola, Professor	ISOF-CNR Bologna	01.08.2003	31.03.2014