

## Luminescent light-harvesting antennae

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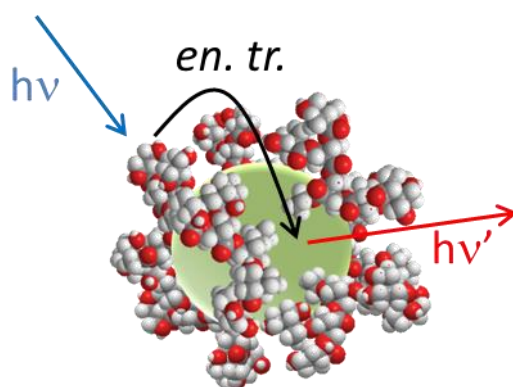
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An antenna for light harvesting is an organized multicomponent system in which many chromophoric molecular units absorb the incident light and then channel the excitation energy to a common acceptor component [1]. An efficient antenna effect can only be obtained in multichromophoric arrays suitably organized in the dimensions of time, energy, and space and different scaffolds are employed to organize the multiple chromophores.

The research on light-harvesting antennae is a *leitmotif* of my research activity: from dendrimers to persulfurated phosphorescent chromophores and luminescent inorganic nanocrystals.

Examples will be discussed with particular emphasis on two cases: (i) a hexathiobenzene benzene core coupled to peripheral ligand groups exhibiting aggregation induced luminescence[2] and (ii) a family of Silicon nanocrystals (SiNCs)[3] or Cadmium Indium Sulfide (CIS) quantum dots functionalized by organic chromophores.[4]

Applications of these light-harvesting antennae are diversified: luminescent sensors of metal ions, bioimaging probes and luminescent solar concentrators.



**Figure 1.** Schematic representation of a light-harvesting antenna based on hybrid nanocrystals.

### References

- [1] V. Balzani et al., *Curr. Opin. Chem. Biol.* **2003**, 7, 657-665.
- [2] A. Fermi et al., *J. Am. Chem. Soc.* **2014**, 136, 6395-6400.
- [3] L. Ravotto et al., *Chem* **2017**, 2, 550-560; R. Mazzaro et al., *ACS Photonics* **2019**, 6, 2303-2311.
- [4] G. Morselli et al., *Nanoscale* **2022**, 14, 3013-3019.