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Gold Nanostars

Synthesis, Properties and Biomedical Application

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Preface

Gold nanoparticles are nowadays used in high-technology applications such as organic photovoltaics, sensory probes, therapeutic agents, drug delivery in biological and medical applications, electronic conductors, and catalysis due to their unique properties. Among the various types of gold nanoparticles gold nanostars (GNS) feature two or more localized surface plasmon resonances (LSPR) that undergo thermal relaxation when irradiated. Moreover, at least one LSPR falls in the near-IR (NIR) range where tissues and blood are semitransparent making them attractive prospects for medicine and biology. The research groups at the Department of Chemistry (University of Pavia) and Department of Physics (University of Milano-Bicocca) have developed their own research field devoted to preparation, functionalization, and further application of these types of gold nanoparticles. In this brief we summarize the most essential information about GNS. Special emphasis has been given to the application of GNS and GNS-based systems to medicine and biology.

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