

**21. СИМПОЗИЈУМ ФИЗИКЕ
КОНДЕНЗОВАНЕ МАТЕРИЈЕ**
**THE 21st SYMPOSIUM ON
CONDENSED MATTER PHYSICS**

BOOK OF ABSTRACTS



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Fabrication Hybrid Janus Nanoparticles And Their Application As Light-Driven Micromotors

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Abstract. Interest in developing micro/nano motors (MNMs) increased rapidly in the last couple of years. These advanced systems can address critical challenges in manipulation of objects at small-scales. Micro/nano motors are capable to move controllably in fluids under the influence of various stimuli (thermal, magnetic, light, etc.) and perform specific operations, including propelling micromachines. Here we synthesized two types of hybrid Janus particles, Au-TiO₂ and AgAg₂S-TiO₂, and tested them as possible light-driven micromotors. Light, as a versatile power source, allows non-invasive control of the motion of the motors with high spatial and temporal resolutions. Illumination induce asymmetric reactions on the two sides of the Janus particles, which can create the propulsion. To optimize the properties of the MNMs, we performed synchrotron radiation gas-phase photoemission spectroscopy (SR PES) of the free standing hybrid particles at synchrotron SOLEIL, France. SR PES provided an information about the valence level alignment of the components, possible hybrid states and dominant scattering processes.

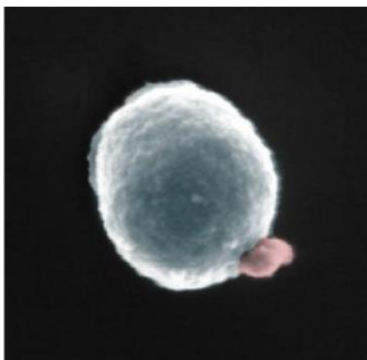


FIGURE 1. TEM micrograph of Au-TiO₂ Janus particle (size ~400 nm)

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