

The University of Texas at San Antonio

UTSA Physics and Astronomy



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MAGNAMED

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MAGNAMED: Novel magnetic nanostructures for medical applications

Magnetically controlled nanoparticles offer an excellent opportunity to develop innovative medical applications. Namely, superparamagnetic particles have been investigated in the last decades for hyperthermia in cancer treatments or magnetic sensors for illness detection. Nowadays, lithography techniques allow the fabrication of non-superparamagnetic nanostructures with specific spin configurations suitable for biomedical assays. Here, we will revise these spin configurations, the fabrication methods of nanostructures and their potential in medical applications. In particular, we will describe giant magnetoresistance sensors for diagnostics, and cancer cell annihilation techniques based on the magneto-mechanical actuation of nanostructures. These are the main objectives of the international MAGNAMED project, in which UTSA is also involved through the Prof. Monton's lab.

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