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Magnetic nanoparticles for hyperthermia cancer treatment: A review on the most recent advances

The magnetic nanoparticles can act as local nano-heaters for hyperthermia cancer treatment under a contactless action of a radiofrequency field. Though the concepts of magnetic fluid hyperthermia (MFH) were originally proposed over 50 years ago, the technique has yet still several challenges to overcome before it can be successfully translated into a routine clinical application. Among the challenges to be addressed is the determination of the optimal fields and frequencies that maximize the treatment and diminish the side effects. This optimal radiofrequency field strongly depends on the physicochemical properties of the nanoparticles such as composition, size, shape, magnetic properties, aggregation degree, coating, media viscosity, among others. In this talk it

will be discussed on the current state of the art of MFH, the advances in the design of the nanoparticles, the most promising materials so far, and some of the most important results made in-vitro cell experiments.

Speaker Biography

Patricia de la Presa has completed her PhD at the University of La Plata, Argentina. After six years as assistant researcher at the Universities of Goetting and Bonn, Germany, she moved to the Instituto de Magnetismo Aplicado at the Complutense University of Madrid (UCM), Spain. At present, she is professor at the Department of Materials Physics (UCM) and works on physical properties of magnetic nanoparticles for technological applications. She has over 70 publications that have been cited over 1100 times with H-index of 18 and has supervised several PhD theses besides Master theses from worldwide students.

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