

Abstract Submitted
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Sonochemical Synthesis and Magnetic Imaging of Hollow-Shell Iron-Platinum Nanoparticles REMMI BAKER, PARIS BARNES, ERIC MARTELL, Millikin University — As science has continued to evolve, scientists have been diving deeper and deeper, researching and analyzing the tiniest of objects. Interestingly, materials such as gold, silver, iron, and platinum behave differently on the nanoscale than the macroscale. Discrepancies between the behaviors of macro- and nanoparticles of the same substance are not well understood, which has led scientists to pursue the question as to why nanoparticles behave differently. Further research into the fabrication of hollow-shell iron-platinum nanoparticles and their unique properties may lead to real-world applications. Iron-platinum (FePt) nanoparticles are recognized for their unique magnetic properties; however, these properties have largely not been researched. FePt samples were prepared using sonochemical techniques. We report on the magnetic force microscopy imaging for self-assembled hollow-shell FePt nanoparticles, and relate our findings to the physical characteristics of the hollow-shell FePt nanoparticles. Additionally, we investigate the magnetic properties for FePt nanoparticles by analyzing the role of the electrons and their interactions occurring within the magnetic domain.

Remmi Baker
Millikin University

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