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Iron Nanoparticles for Environmental Applications Studied by Magnetic Force Microscopy[1] TREVOR BOWMAN, COLIN INGLEFIELD, Weber State University, Department of Physics, MAREK MATYJASIK, Weber State University, Department of Geosciences — Iron nanoparticles have been widely used in environmental applications due to the ability of the iron to extract harmful chemicals from solution. Because of this trait, zero-valent, iron nanoparticles are currently being used in many water reclamation processes. Using Atomic Force Microscopy (AFM), and Magnetic Force Microscopy (MFM) with CrCo magnetic tips, we were able to obtain images of various materials with the hope to track nanoparticulate iron through different chemical reactions commonly used in water reclamation. We used standard MFM techniques in our investigation, with the magnetic information coming from a measure of the change of phase of the tip's resonant oscillation. Preliminary results of the study using commercial grade nanoparticle solutions evaporated on flat glass surfaces and plans for future experiments will be presented.

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