

Synthesis and Characterization of Nano materials (ultra-thin Fe, FeS nano-sheets and single crystalline Fe nano-cubes) Via Mustard Oil Mediated Solution Phase Process and Their Applications in Sensing and Photo-Thermal ablation.

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Abstract: We report a facile synthesized of ultra-thin Fe, FeS nano-sheets and single crystalline Fe nano-cubes using mustard oil. Nano-materials were studied in detailed and characterized by using HRTEM, HRSEM, EDS, SAED, XRD, AFM, U-Vis, FTIR, Raman, XPS, and Auger spectroscopy. We have also investigated the mechanism involved for the formation of such nano-structures. It is an inexpensive, efficient, convenient, and ultra fast process to synthesis varieties of nano-materials. In addition, their possible sensing and photo-thermal ablation ability have been highlighted.

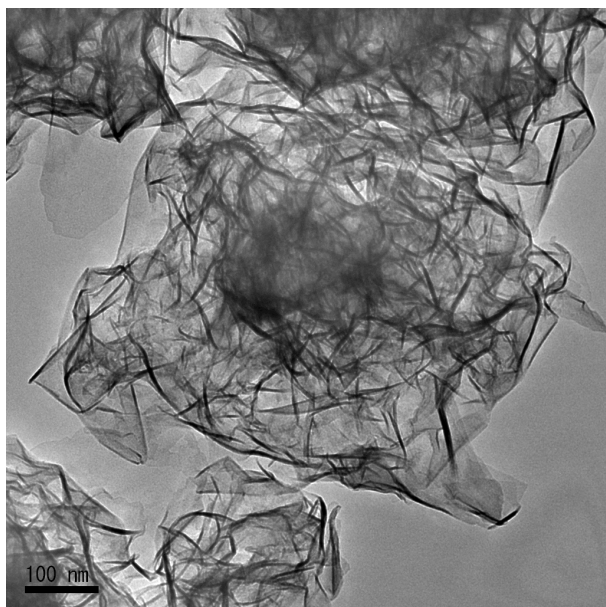


Figure 1: TEM image of ultra-thin Fe Nano-sheets

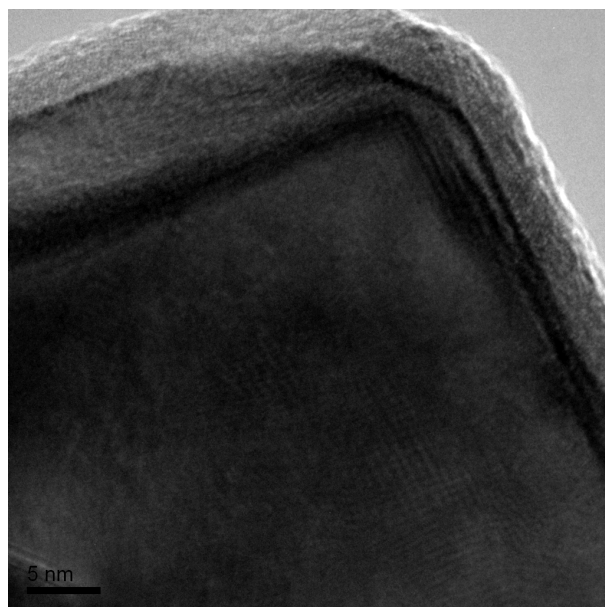


Figure 2: TEM image of Fe Nano-cube.