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## Synthesis and magnetic behavior of Fe-Co nanoparticles

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Magnetic Behavior in FeCo nanoparticle is investigated. A series of Fe<sub>1-x</sub>Co<sub>x</sub> ( $x = 0.3, 0.5$  and  $0.7$ ) nanoparticles were fabricated using the hydrothermal method. XRD studies determined that the structures of the first two NP's were BCC while that of the third was of a disordered structure having a few small disordered BCC crystallites. SEM images of the first two showed that these nanocrystals have well structured pyramid shapes with planar surfaces on them. FC and ZFC magnetization curves showed the temperature dependences of the magnetization of the third FeCo NP's were different from those of the first two. The hysteresis loops at 300 K, 150 K and 10 K showed horizontal shifts of most of the loops seen. Most of the shifts were towards the left, meaning that in most of the NP's, it took more work to flip the spin in an increasing magnetic field than in a decreasing magnetic field.

### Biography

My name is Pimsiri Potpattanapol. I come from Thailand. I'm studying for a master degree in Physics at Kasetsart University. I'm interested in material science. Since I was studying undergraduate so I have a chance to study material science seriously. For my first research, I studied the synthesis of Nanowires and chemical reaction methods. It was analyzed by the physical properties and the magnetic properties. And in my current work, I have synthesized nanoparticles by hydrothermal method. It made me discover many new things and I got the knowledge more. In the future, I hope that I will have the opportunity to fabricate nanomaterials for our nation and planet.

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