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The role of pH and calcination process on CuFe₂O₄ nanoparticles synthesized by microwave-hydrothermal reactions

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ABSTRACT

CuFe₂O₄ nanoparticles were synthesized by microwave-hydrothermal reactions in solutions of different pH values, and followed by the 450 Å°C calcination for 1 h. The products were then characterized using XRD, TEM and SAED, in order to determine the phase, particle sizes and orientations. It was found that the particle sizes, determined from Scherrer equation and TEM images, were increased with the increase in the basicity of the solutions. Thus the results have the influence on the product properties.

INDEX TERMS

- * **IEEE terms**
Calcination , Electromagnetic heating , Magnetic materials , Materials science and technology , Nanoparticles , Scanning electron microscopy , Semiconductor thin films , Temperature , X-ray lasers , X-ray scattering
- * **INSPEC**
 - * **Controlled Indexing**
X-ray diffraction , calcination , copper compounds , crystal growth from solution , nanoparticles , pH , transmission electron microscopy
 - * **Non Controlled Indexing**
CuFe₂O₄ , SAED , Scherrer equation , TEM images , XRD , calcination process , microwave-hydrothermal reactions , nanoparticles , pH values , particle orientations , particle sizes , temperature 450 degC , time 1 h

REFERENCES

1. W. Ponhan, S. Maensin, Solis State Sci., 11 (2009) 479-484.
2. Z. Sun, L. Liu, D.Z. Jia, W. Pan, Sensors & Actuators B, 125 (2007) 144-148.
3. S.D. Sartale, G.D. Bagde, C.D. Lokhande, M. Giersig, Appl. Surf. Sci., 182 (2001) 366-371.
4. R.K. Selvan, C.O. Augustin, L.J. Berchmans, R. Saraswathi, Mater. Res. Bull., 38 (2003) 41-54.
5. D.M. Schleich, Y. Zhang, Mater. Res. Bull., 30 (1995) 447-452.

