

2nd International Conference and Exhibition on
Mesoscopic and Condensed Matter Physics
October 26-28, 2016 Chicago, USA

The collective effect of magnetic holes of different dimensions in superparamagnetic continuum subjected to gradient magnetic field: A birefringence study

P M Trivedi

Bhavan's Sheth R A College of Science, India

A magnetic liquid also called ferrofluid is a colloidal dispersion of surfactant coated ferrite particles of nano-size. The behavior of such fluid is of super-paramagnetic nature. In such diluted continuum micron size graphite particles were dispersed. This created magnetic holes. As their size varies, their coagulations in the form of particle chains under external magnetic field are also affected. Light transmitted through thin films of such materials exhibit birefringence. Experimentally observed extinction parameters are reported to have reversal effects. Role of gradient density distribution of anisotropic magnetic particles is discussed for the observed phenomenon. Necessary theoretical model is developed and compared with the experimental data.

Biography

P M Trivedi is presently working as an Associate Professor at Bhavan's Sheth R A College of Science, affiliated to Gujarat University, a UGC India recognized university. He completed his PhD in 2004 from Bhavnagar University. He has assisted some government educational institutes for syllabus designing as well as laboratory establishments for under graduates and research purposes. Though he is mainly involved in UG and PG teaching, he has played key role in cultural activities of the college and has done career counseling for a large number of students.

premurvi@yahoo.com

Notes: