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Structure, Properties and Applications of Nd-Fe-B Permanent Magnets

Venue - **Ninomiya House**
Seminar Hall
1st Floor

May 18, 2013 (Saturday), 5:00 pm ~

Speaker
Dr. Uma Maheswara Rao Seelam

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The history of permanent magnets goes ages back, about 500 BC. However, major breakthroughs in this field have emanated in the last century with the development of varieties of ferrites, Alnico, Sm-Co and Rare earth-Fe based magnets. Nd-Fe-B magnets were discovered in 1983 and are the most powerful of all the permanent magnets known to the human till date. Their maximum energy product ($\sim 460 \text{ kJ/m}^3$) is about ten times that of the conventional ferrite magnets. For this reason, these magnets find numerous applications in almost every aspect of the human life. Even after 30 years of their discovery, Nd-Fe-B magnets have found no competition, and are under constant research and development, especially in Japan.

In this meeting, a broad overview of Nd-Fe-B magnets will be presented. Starting with a brief history, the structure, properties and applications of these magnets will be highlighted. In addition, current research on Nd-Fe-B magnets, especially in our group, will be reviewed to reach multidisciplinary audience.