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# ABSTRACTS

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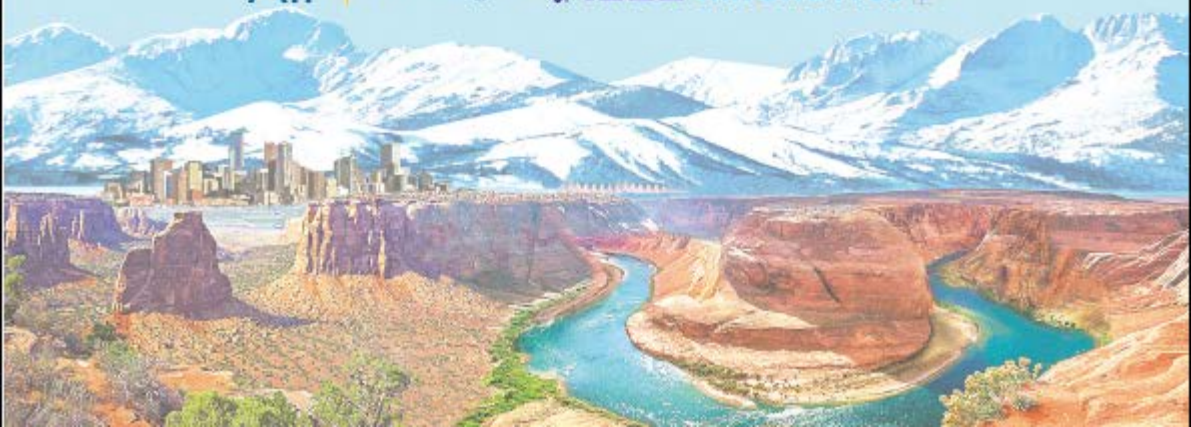

**AV-14. Magnetic properties of Nd-Ga-$Fe_{bal}$-Nb-B alloy.** *H. Kim*[1], C. Kim[1], S. An[2], K. Choi[2] and M. Choi[2] *1. physics, Kookmin university, Seoul, Republic of Korea; 2. Corporate R&D, Samsung Electro-Mechanics, Suwon, Republic of Korea*

The Nd-Ga-Febal-Nb-B alloy was synthesized by strip casting method. The crystalline and magnetic properties of sample were investigated with x-ray diffractometer (XRD), vibrating sample magnetometer (VSM), and Mössbauer spectroscopy. The XRD pattern was analyzed with the Rietveld refinement analysis. Crystal structure of this alloy is found to be a tetragonal structure, the space group is p42/mmm. Lattice constants of the sample are $a_0$=8.802, $b_0$=8.802, and $c_0$=12.215 Å. It is confirmed from the Bragg factor ($R_B$) and structure factor ($R_F$) less than 5 % error. The temperature dependence of zero field cooled (ZFC) magnetization curve was measured under 10 kOe between 4.2 and 740 K. Change of the ZFC curve indicated that Curie temperature ($T_C$) is 613 K and spin reorientation temperature ($T_{sr}$) is 130 K. Mössbauer spectra were measured at various temperatures ranging from 4.2 to 620 K. Each spectrum was fitted with six different sextets of Fe site ($8j_1$, $8j_2$, $16k_1$, $16k_2$, 4c, 4e). From this, we could obtain Magnetic hyperfine field ($H_{hf}$), Isomer shift ($\delta_s$), Electric quadrupole ($E_Q$), and area ratio values. $H_{hf}$ and $\delta_s$ were decreased with increasing the temperature, respectively. The $E_Q$ is almost constant up to the temperature 125 K, but we could observe change of the value at 130 K. Curie temperature is 613 K from the measurement of zero velocity counter (ZVC). We confirmed that the $T_C$=613, $T_{sr}$=130 K agree well with those from VSM data and Mössbauer analysis data.