

## Magneto-history effect in the $Tb_xGd_{1-x}Ni_3$ compounds

A. Bajorek <sup>a</sup>, G. Chełkowska <sup>a</sup>, A. Chrobak <sup>a</sup>, M. Kwiecień - Grudziecka <sup>a</sup>

<sup>a</sup>A. Chełkowski Institute of Physics, University of Silesia, Uniwersytecka 4, 40 - 007  
Katowice, Poland

The compounds  $Tb_xGd_{1-x}Ni_3$  with a  $PuNi_3$  - type structure have been obtained. The magnetic properties have been investigated by using SQUID magnetometer (Quantum Design MPMS, temperature from 1.9K to 300K and magnetic field up to 7T). The partial replacement of Gd by Tb atoms is reflected in decreasing of the ordering temperature from 115K ( $x=0.0$ ) to 81K ( $x=1.0$ ) as well as the increase of the saturation magnetic moment  $M_S$  from  $6.93\mu_B/f.u$  ( $x = 0.0$ ) to  $7.14\mu_B/f.u$  ( $x = 1.0$ ). The magnetocaloric effect (MCE) has been estimated from the family of magnetic isotherms. The magnetic entropy indicates relatively small change with the Gd/Tb substitution. A large difference of  $M(T)$  curves has been noticed between the so-called field cooling - zero field cooling (FC-ZFC) magnetization. The thermomagnetic curves are sensitive to the applied magnetic field and their origin can be understood as the domain-wall pinning effect and as the temperature dependence of coercivity.

9.7 cm

13.4 cm

### Subject category :

3. Magnetic Structure and Dynamics

### Presentation mode :

poster

### Corresponding author :

Anna Bajorek

### Address for correspondence :

A. Chełkowski Institute of Physics, Solid State Division, University of Silesia, Uniwersytecka 4, 40 - 007 Katowice

### Email address :

anna.bajorek@us.edu.pl