

Magnetic properties of cold rolled Gd in high fields

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This work reports the magnetic properties of thin Gd ribbons obtained with the help of severe plastic deformation (SPD) technique. SPD are very interesting for designing novel functional materials. Depending on the degree of deformation, magnetic, structural or thermodynamic properties could be varied in severely deformed materials, especially in thin ribbons of SPD-treated materials. The reason of such behavior is in a giant magnetic anisotropy induced by SPD. This unexpected phenomena drives to a new thermodynamic and magnetic properties of severely deformed Gd ribbons (1) which are inapplicable for magnetocaloric applications without additional heat treatment procedure. In this work we continue our previous investigations of the SPD on the magnetic properties of 4-f elements, with special accent on magnetic anisotropy.

References:

[1] S.V.Taskaev, M.D.Kuz'min, K.P.Skokov, D.Yu.Karpenkov, A.P.Pellenen, V.D.Buchelnikov and O.Gutfleisch, JMMM 331, 33 (2013)

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