THE INVESTIGATION OF THE MAGNETIZATION REVERSAL MECHANISM IN THE Nd-Fe-B TYPE MAGNET, ALIGNED BY HOT DEFORMATION

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The magnetization reversal mechanism in the Nd₁₆Fe₇₈B₆ hot densified magnet, aligned by means of die-upset forging have been investigated. The magnetic parameters have been derived from major hysteresis loop. The magneto-crystalline anisotropy constants $K_1$ and $K_2$ using Sucksmith-Thompson relation modified by Ram and Gaunt have been calculated from the high field measurements up to 5T. These data have been used to determine the theoretical value of coercivity as a function of the angle $\Psi_0$ between the sample easy axis and the applied magnetic field direction. The experimental value of coercivity as a function of $\Psi_0$ has been determined from the demagnetization curves measured for different angles $\Psi_0$. It was found that the best correlation between theoretical and experimental data have been achieved for magnetization reversal mechanism controlled partially by pining of domain walls on grain boundaries and nucleation processes.

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