Demagnetization factor for a powder of randomly packed spherical particles - DTU Orbit (05/12/2018)

Demagnetization factor for a powder of randomly packed spherical particles

The demagnetization factors for randomly packed spherical particle powders with different porosities, sample aspect ratios, and monodisperse, normal, and log-normal particle size distributions have been calculated using a numerical model. For a relative permeability of 2, comparable to room temperature Gd, the calculated demagnetization factor is close to the theoretical value. The normalized standard deviation of the magnetization in the powder was 6.0%-6.7%. The demagnetization factor decreased significantly, while the standard deviation of the magnetization increased, for increasing relative permeability. © 2013 AIP Publishing LLC