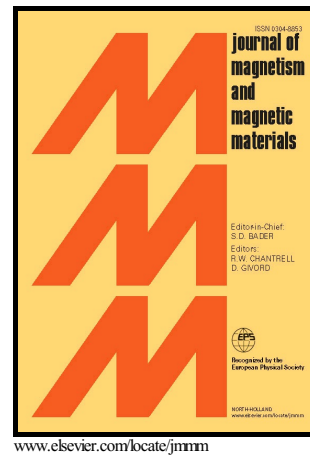


# Author's Accepted Manuscript

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PII: S0304-8853(16)33114-6  
DOI: <http://dx.doi.org/10.1016/j.jmmm.2016.11.088>  
Reference: MAGMA62163

To appear in: *Journal of Magnetism and Magnetic Materials*

Cite this article as: Habib Aminfar, Mousa Mohammadpourfard and Kosa Khajeh, Mechanobiology of LDL Mass Transport in the Arterial Wall under the Effect of Magnetic Field, part I: Diffusion Rate, *Journal of Magnetism and Magnetic Materials*, <http://dx.doi.org/10.1016/j.jmmm.2016.11.088>

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## Mechanobiology of LDL Mass Transport in the Arterial Wall under the Effect of Magnetic Field, part I: Diffusion Rate

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### 1. Abstract

It is well-known that the Low Density Lipoprotein (LDL) can accumulate and penetrate into the arterial wall. Here, we have investigated the diffusion rate of macromolecules across the porous layer of blood vessel under the effects of magnetic force. By using a finite volume technique, it was found that magnetic field makes alterations in diffusion rate of LDLs, also surface concentration of macromolecules on the walls. As well, the influence of different value of  $Re$  and  $Sc$  number in the presence of a magnetic field have shown as nondimensional concentration profiles. Magnetic field considered as a body force, porous layer simulated by using Darcy's law and the blood regarded as nano fluid which was examined as a single phase model.

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