L S Lima, J Membra Sci Technol 2017, 7:2 (Suppl)
DOI: 10.4172/2155-9589-C1-002

Spin transport of the frustrated quasi-two-dimensional XY-like anti-ferromagnet

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We use the Self Consistent Harmonic Approximation together with the Kubo formalism of the linear response theory to study the spin transport in the two-dimensional frustrated Heisenberg anti-ferromagnet in a square lattice with easy-plane ion single anisotropy. The regular part of the spin conductivity $\sigma^{reg}(\omega)$ is determined for several values of the critical ion single parameter D_c, which separates the low D region from the large D quantum paramagnetic phase. We have obtained an abrupt change in the spin conductivity in the discontinuity points of the graphic D_c vs. η, where the system presents a quantum phase transition.

Biography

L S Lima has completed his PhD at the age of 31 years from Universidade Federal de Minas Gerais - Brazil and postdoctoral studies from Tecnische Universität Kaiserslautern, Germany. He is professor of physics of Departamento de Física e Matemática Centro Federal de Educação Tecnológica de Minas Gerais. He has published more than 40 papers in international journals.

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