Grain boundary resistivity of the percolative conduction regime in ruthenium doped manganates

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Abstract: The excellent agreement with experimental data has been achieved in fitting the resistivity of doped manganate-ruthenates for whole temperature range. The analysis interpreted the resistivity in terms of percolation of carriers through the system of grain boundaries, having been assumed as the conductive fractal medium. The percolative conduction regime has been shown substantial for the K-doped ruthenates [H.N. Nhat, H.D. Chinh and M.H. Phan, Solid State Commun. 139 (2006) 456], and we confirm here that this approach also correctly discusses the unusual semiconductor-like behaviours of the doped manganate-ruthenates. © 2006 Elsevier B.V. All rights reserved.
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