



Library Indian Institute of Science Education and Research Mohali



DSpace@IISERMohali (/jspui/)
/ Publications of IISER Mohali (/jspui/handle/123456789/4)
/ Research Articles (/jspui/handle/123456789/9)

Please use this identifier to cite or link to this item: <http://hdl.handle.net/123456789/2735>

Title:	Spin dynamics in Na ₄ -xIr ₃ O ₈ (x = 0.3 and 0.7) investigated by ²³ Na NMR and μ SR
Authors:	Balodhi, A. (/jspui/browse?type=author&value=Balodhi%2C+A.) Singh, Yogesh (/jspui/browse?type=author&value=Singh%2C+Yogesh)
Keywords:	Spin dynamics Na ₄ -xIr ₃ O ₈ x = 0.3 and 0.7 ²³ Na NMR and μ SR
Issue Date:	2015
Publisher:	Institute of Physics Publishing
Citation:	Journal of Physics Condensed Matter, 27 (48)
Abstract:	We report ²³ Na nuclear magnetic resonance (NMR) and zero-field (ZF) and longitudinal-field (LF) muon spin relaxation (μ SR) measurements of the depleted hyperkagome compounds Na ₄ -xIr ₃ O ₈ (x = 0.3 and 0.7), which undergo an insulator-semimetal transition as a function of x. The ²³ Na spin-lattice relaxation rates, T_1^{-1} , follow a T ^{2.5} power law behavior at accessible temperatures of T = 120–350 K. A substantial temperature dependence of T_1^{-1} indicates the presence of gapped excitations at elevated temperatures through the transition to a semimetallic phase. ZF- μ SR results reveal that hole-doping leads to a melting of quasi-static order to a dynamically fluctuating state. The very slow muon depolarization rate which varies hardly with temperature indicates that spins are close to an itinerant limit in the largest doping x = 0.7. The dynamic relaxation rates extracted from the LF- μ SR spectra show a three-dimensional diffusive transport. Our combined NMR and μ SR results suggest the occurrence of intriguing spin and charge excitations across the insulator-semimetal transition.
Description:	Only IISERM authors are available in the record.
URI:	https://iopscience.iop.org/article/10.1088/0953-8984/27/48/485603/meta (https://iopscience.iop.org/article/10.1088/0953-8984/27/48/485603/meta) http://hdl.handle.net/123456789/2735 (http://hdl.handle.net/123456789/2735)
Appears in Collections:	Research Articles (/jspui/handle/123456789/9)

Files in This Item:

File	Description	Size	Format
Need to add pdf.odt (/jspui/bitstream/123456789/2735/1/Need%20to%20add%20pdf.odt)		8.63 kB	OpenDocument Text

[View/Open \(/jspui/bitstream/123456789/2735/1/Need%20to%20add%20pdf.odt\)](#)

[Show full item record \(/jspui/handle/123456789/2735?mode=full\)](#)

[Statistics \(/jspui/handle/123456789/2735/statistics\)](#)

Items in DSpace are protected by copyright, with all rights reserved, unless otherwise indicated.