

Abstract Submitted  
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**Transport properties of superconducting La and Ce-based ferropnictides** S.J. SINGH, School of Physical Sciences, Jawaharlal Nehru University New Delhi-110067 India, J. PRAKASH, A.K. GANGULI, Department of Chemistry, Indian Institute of Technology New Delhi-110016 India, S. PATNAIK, School of Physical Sciences, Jawaharlal Nehru University New Delhi-110067 India — To understand the role of chemical pressure, we have synthesized a variety of La and Ce-based ferropnictides (La/Ce)OFeAs with substitution of Y, F, Co and Sb in place of La/Ce, O, Fe and As respectively. A broad spectrum of characterizations involving XRD, SEM, magnetoresistance, magnetization, penetration depth, Hall effect and thermoelectric power have been undertaken on these phase pure superconducting compounds. The transition temperature and upper critical field reached maximum of 48.6 K & 146 T in Ce-based sample whereas 35 K and 122 T in La-based superconductor. The magnetization measurements of all samples showed negligible hysteresis reflecting weak link behaviour or an imperfectly connected superconducting state. The thermoelectric power and Hall measurement confirmed the dominant role played by electrons in these multiband superconductors. The rf penetration depth analysis indicated s-wave pairing symmetry with multiple gap values.

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