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Calorimetric transition widths, microstructure and magnetic relaxation of MgB_2 with and without additives CARMINE SENATORE, DPMC, University of Geneva, CH-1211, Switzerland, PAOLA LEZZA, GAP, University of Geneva, CH-1211, Switzerland, GIUSEPPE CUSANELLI, GAP, University of Geneva, CH-1211, Switzerland, SHI XUE DOU, ISEM, University of Wollongong, NSW 2522, Australia, RENE FLUKIGER, DPMC, University of Geneva, CH-1211, Switzerland — The addition of nanometric powders of SiC is known to improve the pinning properties of MgB_2. Nevertheless, the underlying physical mechanism remains yet unclear. In this frame we report on specific heat measurements of sintered polycrystalline samples of MgB_2 and *in situ* MgB_2 wires, both pure and with SiC nano-additions. A comparison is made with results obtained from microstructural analysis (X-Ray diffraction, SEM, EDX). Specific heat has been measured as a function of temperature (2-45 K) at zero field and at 14 T. Our goal is to relate the broadening of the superconducting transition observed in the samples with additives to the variation in the lattice structure induced by the nano-additions. Furthermore, magnetic relaxation measurements have been performed in order to investigate the effect of the nano-additions on the pinning mechanism.

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