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Magnetism and charge density wave in GdNiC2 and NdNiC2[1]
TOM KLIMCZUK, KAMIL KOLINCIO, MICHAL WIANIARSKI, JUDYTA STRYCHALSKA-NOWAK, KAROLINA GRNICKA, Faculty of Applied Physics and Mathematics, Gdansk University of Technology — The $RNiC_2$ compounds form in an orthorhombic Amm2 crystal structure with Ni and the rare-earth (R) metal chains along the crystallographic a-axis. This system is of particular interest because both a CDW and a long range magnetic ordering phases have been observed together. We report the specific heat, magnetic, magnetotransport and galvanomagnetic properties of $GdNiC_2$ and $NdNiC_2$ antiferromagnets. Complex B-T phase diagrams were built based on the specific heat data. Large negative magnetoresistance due to Zeeman splitting of the electronic bands and partial destruction of a charge density wave ground state is observed above T_N. The magnetoresistance and Hall measurements show that at low temperatures a magnetic field induced transformation from antiferromagnetic order to a metamagnetic phase results in the partial suppression of the CDW. This project is financially supported by National Science Centre (Poland), grant number: UMO-2015/19/B/ST3/03127.

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