

## **Ni-Mn-based Heusler magnetic shape memory alloys: preparation and characterization**

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The PhD subject concerns the development and characterization of novel magnetic materials exhibiting the magnetic shape memory effect and the magnetocaloric effect. The materials under investigation are based on Ni-Mn and contain an addition of a third element such as Sn, Al, B. These alloys feature  $L2_1$  Heusler structure and may undergo structural and magnetic transition under the application of temperature, stress and a magnetic field. This allows utilizing them for making of actuators, sensors, new generation energy harvesters and magnetic coolants. The research undertaken within the scope of the PhD project is aimed at manufacture and analysis of these types of materials employing various production techniques like conventional metallurgy, melt spinning, powders metallurgy. The underlying objective is to tune the phase and magnetic transformation temperature so they coincide in close proximity to ambient temperature. This is of fundamental importance for practical applications.