



Institute of Physics of the
Czech Academy of Sciences

SEMINAR

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Reorientation of B19' monoclinic martensite in NiTi activated by heating under constant applied stress

According to the state-of-the-art, shape memory alloys in martensite phase can be deformed within the range limited by the crystallography of martensitic transformation via martensite reorientation, however it remains dimensionally stable upon any thermal loading unless reverse martensitic transformation takes place. In a sharp contrast to this widespread view, a tensile elongation up to ~4% has been observed on heating in the martensitic NiTi wire under constant applied stress before it transforms to austenite. The unexpected tensile elongation depends on applied stress and on the austenitic microstructure of the wire. The phenomenon was investigated by thermomechanical testing combined with TEM analysis of martensitic microstructures in deformed wires.

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