

Towards biomedical applications of Heusler alloys

Heusler alloys are alloys of three or more metal elements with specific atomic ordering that enables reaching properties very different from those of pure metals. Typically, the Heusler alloys can be ferromagnetic, despite of being composed of three non-magnetic elements. The Heusler ordering can also affect the lattice stability, leading to acoustic phonon condensation and diffusionless phase transition. Recently, the Heusler alloys have attracted a lot of attention as promising candidates for biomedical applications, in particular for bone tissue replacements, combining bio-mimetic elastic properties, high flexibility and surprising corrosion resistance. The lecture will summarize the current achievements in this direction, and especially the research carried out at the Tohoku University in Sendai (Japan) in collaboration with the Institute of Thermomechanics, Czech Acad Sci..

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