

# Zinc based materials as perspective candidates for fabrication of biodegradable implants

Jaroslav Capek\*

Institute of Physics of Czech Academy of Sciences, Prague, Czech Republic

## Abstract

Zinc based biodegradable materials were introduced in 2011 and since that time a large number of studies dealing with this topic has been published. Compared to the other candidates for metallic biodegradable implants, namely Mg- and Fe-based materials, Zn-based materials possess the most suitable corrosion behavior. On the other hand, pure as-cast zinc is fragile and does not reach sufficient strength for applications for implantology. Fortunately, suitable alloying and thermomechanical treatment allow us to enhance mechanical performance of zinc alloys to fulfill the basic requirements of medical industry.

In my presentation, I will sum up the current status of Zn-based biodegradable materials and methods allowing preparation of Zn-based materials for implantology. Moreover, some of our results will be shown. Particularly, Influence of alloying, extrusion or equal channel angular pressing on microstructure, mechanical and corrosion behavior, as well as on in-vitro and in-vivo biocompatibility will be discussed.

## Biography

Ing. Jaroslav Čapek, Ph.D is an expert focusing on physical metallurgy and design of metallic materials. His main interest lies in experimental and theoretical investigation of relationships between chemical composition, processing route, microstructure and mechanical properties of metallic materials. Recently, he deals with the design of metallic biodegradable materials for medicine.

Email: capekj@fzu.cz