EVALUATION OF BACHELOR THESIS
Student: Lukes Vojtech, Czech Technical University in Prague

The thesis investigates the possibility of using bio-inert coating on Mg-based substrates for biomedical application. The aim is to take benefit from mechanical properties of Mg-based material that are close to those of the natural bone, while reducing the risk of excessive and uncontrolled corrosion.

The thesis is very well developed, and well-written. It reads well. It includes the state of the art of cold spray deposition, reviews the major process parameters and discusses cold spray applications in different fields. It also covers medical application of metallic materials and the advantages and challenges of metallic materials currently used for biomedical implants, as well as ceramics and polymers.

The second part of the thesis provides detailed experimental analysis on the coated specimens prepared with the aim to address the extreme reactivity, high corrosion rate and eventual premature failure of the Mg alloy in biological environment.

Below you can see few minor comments and questions:

Page 10, 1st paragraph, the mechanism and stages in cold spray deposition are vaguely described. The second stage seems to be missing! Also, the hammering effect should be better described.

During grinding and polishing steps, what solutions were used? If they were aqueous, wouldn't they cause local corrosion or pitting of the substrate?

Why do you think a rather good adhesion was obtained at the substrate-coating interface? What could be the dominant mechanism considering limited deformation of the Ti particles at the interface?

Overall, I rate the thesis with grade A and **recommend it to be accepted** for oral defense.

In Milano, Italy, on June 11, 2021
Dr. Sara Bagherifard