

# Announcement of a Master's Thesis, 28.10.2024

## Stress Corrosion Cracking of Magnesium Alloy for Biomedical Application

### Description

This position offers an opportunity for a master student to engage in a project in Research Group of Lightweight and Forming Technologies (LFT), Institute of Materials Science, Joining and Forming (IMAT). You will be part of a dynamic team working on characterization of materials for biomedical applications. The focus will be on investigating the stress corrosion cracking (SCC) of extruded magnesium alloys as a candidate for biodegradable implants.

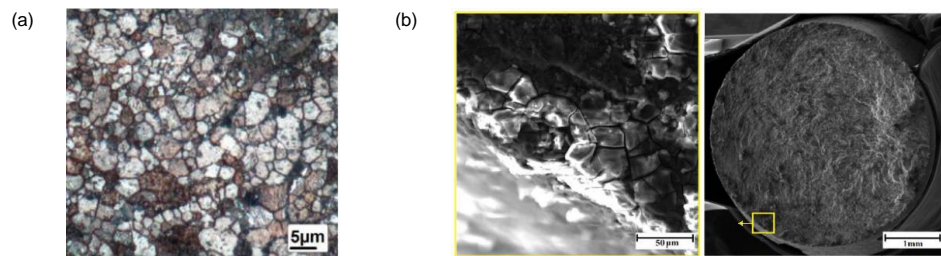


Figure 1: Extruded Mg-based material for biomedical application; a) microstructure, and b) crack initiation point in simulated body fluid (SBF).

The main duties and responsibilities are as follows:

- Literature review on the subject,
- Sample preparation for microstructural evaluation, corrosion tests, and SCC tests,
- Microstructural evaluation of the magnesium alloy,
- Measuring corrosion rate of the magnesium alloy in simulated body fluid (SBF),
- Implementing uniaxial tensile and compressive tests in air,
- Implementing experimental tests related to SCC in SBF,
- Evaluation of fracture surfaces,
- Proposing a damage model for SCC,
- Writing a master's thesis.

Working knowledge of English is required for this position and German language would be beneficial. Moreover, a background in mechanical engineering and materials science would be extremely beneficial.

### Organization

**Duration:** 6 months

**Location:** Research Group of Lightweight and Forming Technologies (LFT), Inffeldgasse 11/I, 8010 Graz

**Reward:** € 3.000 + € 500 performance bonus for an excellent success

### Further information

For further information, please contact *Dr. Amirhossein Jabbari Mostahsan* ([jabbarimostahsan@tugraz.at](mailto:jabbarimostahsan@tugraz.at))