**Layout of poster abstract**

**Title** of poster

**Authors:** Presenter – Coauthors

**Affiliation:** Helmholtz Centre**,** Institute, City, Country

**Text:** Max 250 words

**Statement:** My topic brings digital MSE forward because………

**Example:**

**Title:** The digital twin for degradable Mg-implants

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**Text:** Thousands of patients have been treated successfully with magnesium-based implants, and the number of approved products increases. However, we still have not reached a full understanding of all processes during the degradation of such implants and regeneration of the surrounding tissue. *In vitro* studies with sufficient spatial, temporal and chemical resolution to reach such an understanding are challenging, and longitudinal *in vivo* monitoring with equally good resolution is typically even impossible. At the same time, extrapolating the *in vivo* outcome based on *in vitro* tests remains unreliable. Therefore, we are aiming at the development of a Digital Twin for *in silico* studies. To calibrate this digital twin, we use not only reliable electrochemical data but also multiscale *in vitro* and *in vivo* image data by employing synchrotron radiation-based micro computed micro and nano tomography or transmission electron microscopy for Mg-xGd implant materials (x=2, 5, 10 wt. %). Using a peridynamic model in conjunction with a Kriging surrogate model, we were then able to simulate the degradation process and derive commonalities between different alloys and the difference in *in vitro* and *in vivo* tests. In summary, we have the first module of a Digital Twin for the degradation at hand which will be coupled with a model of the tissue regeneration.

**Statement:** My topic brings digital MSE forward because *we develop genetic digital twins for metals in a challenging surrounding.*