



Contribution ID: 268

Type: Talk

【718】 Investigation of hydrogen distribution in hybrid Ti-Mg implant materials using neutron tomography

Wednesday 6 September 2023 19:00 (15 minutes)

Hybrid implants consisting of a permanent Ti-based part combined with a degradable Mg part, are promising solutions to improve the biocompatibility and stability of current implants. In these implants the Ti provides high strength while temporary Mg part is used for bone stimulation or drug delivery. As Mg degrades hydrogen gas is released which ingresses into the Ti part, leading to changes in its properties. To investigate this phenomenon, sintered hybrid samples prepared using metal injection moulding were subjected to saline degradation for a period of 0 to 120 hours and neutron tomography was used to study the ingress of hydrogen in 3D after the degradation of Mg.

Theoretical Work

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Session Classification: Neutron Science

Track Classification: Neutron Science