

# EUROMAT 2021

EUROPEAN CONGRESS AND EXHIBITION  
ON ADVANCED MATERIALS AND PROCESSES

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12. - 16. SEPTEMBER 2021

GRAZ, AUSTRIA

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## Area F

### Symposium F7

<b>Title <i>Metallic Biomaterials</i></b>		
<b>Organizer</b>	<b>Institution</b>	<b>Contact email</b>
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<b>Abstract</b>		
<p>Scope: The aim of this symposium is to present an overview of latest achievements in the field of metallic biomaterials, including biodegradable metals. Beside key existing and emerging strategies for surface and bulk modifications, new concepts for advanced manufacturing, imaging and computational approaches will give a complementary view on this exiting field of research.</p> <p>Description: For many decades, metals and alloys play an important role in medicine. They are widely used as non-degradable scaffolds or functional medical devices in orthopaedics (hip prosthesis, fixation systems...), in dentistry (dental implants, orthodontics...), in vascular surgery (coronary stents...), in neurosurgery, etc. However, in recent years a number of new advanced metals have been introduced, including new Ti-based alloys, new TWIP and TRIP metallic systems, and biodegradable metals. Altogether, metallic biomaterials are getting more and more attention. For example, in biodegradable metals, based on a growing understanding on how to control mechanical and degradable properties in combination with suitable features enhancing and promoting the interaction with cells and living tissues, completely new ways of tissue regeneration will open up. New fabrication technologies, including additive, computational material design, specific characterization techniques (analytics, in situ technologies, etc.), and artificial intelligence-enhanced processing will enable us to produce patient specific metallic implants which will be able to treat patients worldwide in a specific, and even personalised clinical approach.</p> <p>Targeted Topics: - Metallic alloys for biomedical devices, implants and new strategies; - Biodegradable metals, from all horizons, produced by conventional, additive, electrochemical approaches;</p>		

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- Computational material design for new designing and manufacturing technologies;
- In vivo imaging of metallic implants and degradable metals;
- Biomechanics, degradation under physiological conditions and biological investigations
- Surface modification and coatings for biodegradable metals;
- Non-destructive controls for in situ clinical follow up of the mechanical properties;
- others not included above.