Nota Bene

This is the final version of the program of the 11th Biometal, as of August 1.

Venue

Hotel Alicante Golf, Avenida de las Naciones sn, 03540 Alicante, Spain

We suggest you that you arrive ON Sunday August 25, the registration includes the hotel from that night.

Additional nights: Please let us know if you require any additional nights. We have a special rate of 95 Euros.

Travel info

By plane

Alicante airport is located 10 KM from the City center. The hotel can be reached by Taxi or a combination of buses. **Please note that no shuttle service will be offered by the organizing committee.**

Hotel Alicante Golf is located at Alicante’s Playa de San Juan, 800 meters from the beach and opposite the 18th hole of Alicante Golf. It is surrounded by extensive gardened grounds, leisure and water activity areas and is only 10m from the city centre (by car or tram – tram station in front of the hotel) and 21km from Alicante's International Airport.

From Alicante airport

The hotel can be reached by taxi or public transport.

Taxi

The transfer by taxi from the airport is estimated at about 35 Euros

Public transport

The **bus line C6** connects Alicante Airport to the city center every 20 minutes at daytime. At night (midnight to 5 AM), there is a bus every 60 minutes. The single fare is 3,85 €.

This is without a doubt the most convenient option to transfer safe and sound to key locations within downtown, since it stops at Luceros and Mercado **TRAM stations** (lines 1, 2, 3 and 4). From that point TRAM line 3 will take you to the Hotel (Campo de Golf station). The single fare is 1,45 €.
Instructions for presenters

Four types of presentations are offered during the 11th Biometal:

**Keynote (K)**

On invitation only, **30 minutes** including 5 minutes (minimum) discussions. Keynote speakers are allowed to connect their own computer to the audiovisual equipment.

**Oral (O)**

15 minutes presentations including 2-3 minutes discussion. Please keep the time. For the benefits of all, we strongly suggest limiting your presentation at 12 minutes. Oral presenters MUST upload their file and check the compatibility of the presentation with the audiovisual equipment in advance and no later than the coffee break prior to the presentation session.

**Short oral presentation (SOP)**

5 minutes **fire** presentation (**NO** discussion allowed). All papers presented as SOP also need to be presented as Poster for allowing discussion and foster exchanges. Short-Oral Poster presenters MUST upload their file and check the compatibility of the presentation with the audiovisual equipment in advance, and no later than the coffee break prior to the presentation session. We suggest SOP presenters to limit their slides to 5, and include title, context/approach, goal(s) of the work, and the main original result(s). SOPs are also assigned a poster (P) number, to which presenters should refer when attaching their poster to the board.

**Poster (P)**

**Poster Size: A0 – vertical, 1189 mm height / 841 mm width.**

Posters are expected to generate discussion between participants during all 11th Biometal 2019. All registered participants are offered to bring a poster to enhance the chance and the potential to show and discuss their work in the field even out of the allowed poster hours. Posters will be displayed and available for generating a basis of discussion and exchange during coffee breaks, afternoon breaks, and nights. Posters will be accessible from morning to late night. Tables and chairs will be available to attendees to seat, share and discuss further. Please prepare your poster to stimulate questions, exchanges, provide ideas and breakthrough in the field. We strongly suggest presenters to include or bring a photo of themselves to be put up next to the poster so to facilitate interactions between participants. Tools for fixation will be provided onsite.
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Monday, Aug 26, 2019

After ten years of Biometal-series meetings, we can draw the portrait on how research and development and innovation in the field of degradable/absorbable metals has progressed across the years. When a new metallic alloy appears, it takes between 5 to 8 years to become a product assessed in vivo. After an initial period of optimisation of the alloy, studies on corrosion and in vitro behavior of the alloys are progressively reported. To optimise the effectiveness of this process, one should inquire how the initial properties and requirements for the alloys are designed. In this one workshop, our intention is to question the audience on all this process. From designing new alloys, to selecting the appropriate fabrication processes, through choosing under which conditions the newly developed alloys must be tested in vitro and under corrosion, and how to choose the animal model for assessing in vivo the potential that the device may represent (or not) for clinics. In a such complex, multidisciplinary, spread process, how to be effective, how to do not look at only one task but keep the vision large? When it is the most suitable step to integrate standardization? When clinicians need to be questioned? The goal of this workshop is to expose the attendees to all this questions, propose some directions for solutions, and develop, altogether, in a very open and constructive (not dogmatic) way.

Program

Chairpersons: Diego Mantovani and Frank Witte
8:30 Diego Mantovani. Introduction, context and goals of the workshop.
9:30 David Dean. The Ohio State University. Design process: Practical concerns from academic perspective.
10:00 Adam Griebel, Fort Wayne Metals. Standardization in Absorbable Metals. When to start thinking to standards?
10:30 Discussion
10:50 Break
11:50 Hyung-Seop Chris Han, Korean Institute of Science and Technology. To be confirmed.
12:20 Discussion
13:00 Lunch and networking time
17:00 Joerg Loeffler. Polytechnic of Zurich. To be confirmed
17:30 Jan-Marten Seitz, Synthellix. Pioneering with Biodegradable Magnesium Implants.
18:00 Discussion
18:20 Break
18:50 Guangyin Yuan. R&D of biodegradable metals from the aspect of accelerating clinical transformation.
19:20 Herbert Thelen. Biotrics. To be confirmed.
19:50 Discussion and Sum-Up
20:45 Dinner
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# Scientific program

**Tuesday, August 27, 2019**

## Session 1 – Metals

**Chairpersons:** Norbert Hort & Ana Laura Ramirez  
Assignation Code: K=Keynote; O=Oral presentation; SOP=Short oral presentation

<table>
<thead>
<tr>
<th>Time</th>
<th>Code</th>
<th>Title</th>
<th>Assignee</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.00-9.15</td>
<td></td>
<td>Introductory remarks</td>
<td></td>
</tr>
</tbody>
</table>
| 9.15-9.45| K1   | Multifunctional bioresorbable electronic stent                        | Donghee Son  
Korea Institute of Science and Technology, Republic of South Korea                                |
Johns Hopkins University, United States                                                            |
CENIM-CSIC, Spain                                                                                   |
| 9.55-10.00| SOP3 | Novel biodegradable alloys from the Zn-Ag-Mg system with enhanced    | Maria Watroba, W. Bednarczyk, K. Mech, G. Boelter, M. Banzhaf, P. Bala  
AGH University of Science and Technology, Poland                                                   |
| 10.00-10.10|     | General discussion of SOP                                              |                                                                                               |
| 10.10-10.15| SOP4 | Sputtered ZnZr thin films for novel Zn-based vascular degradable stents | Fatiha Challali, F. Tetard, P. Djemia, M. N. Labour, V. Bockelée, A. Garcia  
Paris 13 University, France                                                                            |
| 10.15-10.20| SOP5 | Development and characterisation of biodegradable zinc wire and staple | Hui Guo, Y. Zheng  
Peking University, China                                                                                 |
| 10.20-10.25| SOP6 | Friction stir processing of biodegradable Mg-Zn-Y-Nd alloy           | Jun Wang, S. Zhu, Y. Sun, L. Wang, S. Guan  
Zhengzhou University, China                                                                             |
| 10.25-10.30| SOP7 | Designing Bioreosorbable Magnesium Alloys Using an Integrated       | Alan Luo, T. Avey, D. Dean  
The Ohio State University, United States                                                        |
<p>| 10.30-10.40|     | General discussion of SOP                                              |                                                                                               |
| 10.40-11.10|     | Healthy Break and Posters                                             | (attendees presenting posters P1 to P13 should be ready for discussion next to their posters) |</p>
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Title</th>
<th>Speaker(s)</th>
<th>Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.10-11.25</td>
<td>O1</td>
<td>Electrochemical polymerization of polydopamine with/without subsequent PCL coating on Mg-Zn-Y-Nd alloy</td>
<td>Shaokang Guan, C. Song, L. Wang</td>
<td>Zhengzhou University, China</td>
</tr>
<tr>
<td>11.25-11.40</td>
<td>O2</td>
<td>Load-bearing capacity of low alloyed Mg-Zn-Ca during degradation</td>
<td>Jelena Horky, B. Mingler, G. Mozdzen, M. Krystian, L. Sajti</td>
<td>Austrian Institute of Technology, Austria</td>
</tr>
<tr>
<td>11.40-11.55</td>
<td>O3</td>
<td>Effect of nutrient alloying elements on mechanical properties, corrosion behaviour and osteogenesis of biodegradable Zn-based alloys</td>
<td>Huafang Li</td>
<td>University of Science and Technology Beijing, China</td>
</tr>
<tr>
<td>11.55-12.10</td>
<td>O4</td>
<td>An iron manganese nitrogen steel for high strength absorbable devices</td>
<td>Jeremy Schaffer, A. Griebel</td>
<td>Fort Wayne Metals, United States</td>
</tr>
<tr>
<td>12.15-12.45</td>
<td></td>
<td>Conference photo (more details will be provided during the introductory remarks)</td>
<td></td>
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<tr>
<td>12.45-17.00</td>
<td></td>
<td>Lunch and free time</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Session 2 – Metals

Chairpersons: Mark Staiger & Petra Maier

Assignation Code: K=Keynote; O=Oral presentation; SOP=Short oral presentation

17.00-17.30 K2 Towards 3D-Printing of Biodegradable Mg-Alloy Implants
Martin Wolff, T. Ebel, R. Willumeit-Römer, T. Klassen
Helmholtz-Zentrum Geesthacht, Germany

17.30-17.35 SOP8 Qualification of ZnMgx Alloys for Additive Manufacturing of Bioreabsorbable Implants
Maximilian Voshage, P. Schueckler, L. Jauer, P. Wen, A. Kopp, J. H. Schleifenbaum
RWTH University, Germany

17.35-17.40 SOP9 Selective laser melted functionally graded biodegradable porous iron
Delft University of Technology, Netherlands

17.40-17.45 SOP10 Challenges in sintering of Mg-Gd alloy using master alloy powders and powder blends
Khausik Narasimhan, T. Ebel, M. Wolff, V. Mikhailovich Haramus, R. Willumeit-Römer
Helmholtz-Zentrum Geesthacht, Germany

17.45-17.50 SOP11 Biodegradable low-alloyed zinc with enhanced properties subjected to complex deformation process
Anna Jarzębska, M. Bieda, Ł. Maj, M. Stręg, D. Wojtas, R. Chulist, Ł. Rogal, J. Guźpiel, W. Pachla, K. Sztwiertnia
Institute of Metallurgy and Materials Science Polish Academy of Sciences, Poland

17.50-18.00 General discussion of SOP

18.00-18.05 SOP12 3D Printed Zn-Mg Bioabsorbable Stents: a New Paradigm in Personalized coronary artery disease treatment
Laura Catalina Córdoba Román, C. Garcia Mintegui, M. Pegueroles Neyra
Institute for Bioengineering of Catalonia, Spain

18.05-18.10 SOP13 Effect of Mn content on mechanical and corrosion properties of Fe-Mn alloys for biological applications
Jannis Nicholas Lemke, J. Fiocchi, S. Zilio, A. Tuissi, A. Coda
SAES Getters S.p.A., Italy

18.10-18.15 SOP14 Improved mechanical performance of biodegradable Mg WE43 alloy via processing by ECAP and rotary swaging
Francesco D’Elia, C. Zimmermann, I. Schestakow, A. Kopp
Meotec GmbH & Co. KG, Germany

18.15-18.20 SOP15 Laser welding of Fe-Mn-C alloy for biodegradable metallic implants: mechanical response and degradation behavior
Jacopo Fiocchi, C. A. Biffi, S. Gambaro, C. Paternoster, D. Mantovani, A. Tuissi
ICMATE-National Research Council, Italy

18.20-18.30 General discussion of SOP

18.30-19.00 Healthy Break and Posters
(attendees presenting posters P14 to P27 should be ready for discussion next to their posters)
19.00-19.15 O5 Tailoring biodegradable and bioactive polymer/Mg composites for additive manufacturing
Ana Ferrández-Montero, M. Lieblich, J. L. Gonzalez-Carrasco, R. Benavente, B. Ferrari
Institute of Ceramic and Glass, Spain

19.15-19.30 O6 Influence of process parameters on the chemical and geometrical properties of additively manufactured magnesium
Fraunhofer Institute for Laser Technology Aachen, Germany

19.30-19.45 O7 Metallographic Preparation of Magnesium Alloys
Norbert Hort, V. Floss, S. Gavras, D. Tolnai, G. Wiese, P. Maier
Helmholtz-Zentrum Geesthacht, Germany

19.45-20.00 O8 Influence of Test Parameters on Tensile Properties of Magnesium Alloy Wire
Adam Griebel, J. Schaffer
Fort Wayne Metals, United States

20.15-21.15 Dinner

21.30-23.30 Poster session
21.30-22.30 Poster session 1 (odd-numbered posters)
22.30-23.30 Poster session 2 (even-numbered posters)
Bioabsorbable Metal

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Safety
ISO 10993 Test
Biocompatibility TEST
- Cytotoxicity [ISO 10993-5]
- Sensitization [ISO 10993-10]
- Intracutaneous irritation test [ISO 10993-10]
- Genotoxicity test [ISO 10993-3]
Implantation TEST [ISO 10993-6]

Strength

Surface eroding nature of resomet helps sustain the strength of implants better than materials with bulk erosion
### Wednesday, August 28th, 2019

**Session 3 – Corrosion**  
Chairpersons: Carla Vogt & Vesselin Shanov  
Assignation Code: K=Keynote; O=Oral presentation; SOP=Short oral presentation

<table>
<thead>
<tr>
<th>Time</th>
<th>Code</th>
<th>Title</th>
<th>Speakers</th>
<th>Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.00-9.30</td>
<td>K3</td>
<td>Magnesium-electrolyte interface: what spatially resolved techniques see Cor-1</td>
<td>Sviatiana Lamaka, D. Mei, C. Wang, M. Zheludkevich</td>
<td>Helmholtz-Zentrum Geesthacht, Germany</td>
</tr>
<tr>
<td>9.30-9.35</td>
<td>SOP17</td>
<td>In vitro evaluation of novel biodegradable Zn Ag Mg alloy Cor-2</td>
<td>Ana Laura Ramirez-Ledesma, F. Copes, C. Paternoster, D. Mantovani</td>
<td>Laval University, Canada</td>
</tr>
<tr>
<td>9.35-9.40</td>
<td>SOP18</td>
<td>In vitro corrosion behaviour of magnesium in simulated body fluids: the influence of individual components Cor-3</td>
<td>Di Mei, S. Lamaka, M. Zheludkevich</td>
<td>Helmholtz-Zentrum Geesthacht, Germany</td>
</tr>
<tr>
<td>9.40-9.45</td>
<td>SOP19</td>
<td>Enhancing the corrosion resistance and biocompatibility of pure Mg surface through formation of Mg-Fe layered double hydroxide Cor-4</td>
<td>Her-Hsiung Huang, Y-S. Sun, J-Y. Uan, H-H. Ku</td>
<td>National Yang-Ming University, Taiwan (Republic of China)</td>
</tr>
<tr>
<td>9.50-10.00</td>
<td></td>
<td>General discussion of SOP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.00-10.05</td>
<td>SOP21</td>
<td>Optimisation of the corrosion rate of Fe-based alloys for bioresorbable stent applications by surface acidification Cor-6</td>
<td>Sarah Reuter, C. Georges, D. Mercier, M. Duportal, A. Oudriss, C. Savall, P. J. Jacques</td>
<td>Université catholique de Louvain, Belgium</td>
</tr>
<tr>
<td>10.05-10.10</td>
<td>SOP22</td>
<td>Microstructure of a Si contaminated Mg-Zn-Ca alloy and the corrosion behaviour observation via an in-situ approach Cor-7</td>
<td>Yiming Jin, F. Feyerabend, C. Blawert, B. Wiese, R. Willumeit-Römer</td>
<td>Helmholtz-Zentrum Geesthacht, Germany</td>
</tr>
<tr>
<td>10.10-10.15</td>
<td>SOP23</td>
<td>Buffer-induced in vitro corrosion of magnesium alloys: Residual torsional strength of implant devices Cor-8</td>
<td>Anton Good, R. Wilkes, B. Nowak, M. Staiger</td>
<td>University of Canterbury, New Zealand</td>
</tr>
<tr>
<td>10.15-10.20</td>
<td>SOP24</td>
<td>Mathematical modeling of biodegradation of metal implants in orthopedics Cor-9</td>
<td>Mojtaba Barzegari, L. Geris</td>
<td>KU Leuven, Belgium</td>
</tr>
<tr>
<td>10.20-10.30</td>
<td></td>
<td>General discussion of SOP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.30-10.35</td>
<td>SOP25</td>
<td>Research on crevice corrosion behaviors of biomedical Mg Cor-10</td>
<td>Wenhui Wang, X. Zhang, H. Wu, B. Chen, J. Ni, P. Han, S. Zhang</td>
<td>Shanghai Jiao Tong University, China</td>
</tr>
<tr>
<td>Time</td>
<td>Session</td>
<td>Title</td>
<td>Authors</td>
<td>Location</td>
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<tr>
<td>10.35-10.40</td>
<td>SOP26</td>
<td>Immersion and Stress Corrosion of Mg10Gd(1Nd) screws compared to AZ91</td>
<td>Petra Maier, R. Peters, N. Hort</td>
<td>University of Applied Sciences Stralsund, Germany</td>
</tr>
<tr>
<td>10.40-10.45</td>
<td>SOP27</td>
<td>In-vitro measurement setup for simultaneous assessment of degradation and dissolution</td>
<td>Christian Redlich, A. Strauß, P. Quadbeck</td>
<td>Fraunhofer Institute for Manufacturing Technology and Advanced Materials, Germany</td>
</tr>
<tr>
<td>10.45-10.55</td>
<td>General discussion of SOP</td>
<td></td>
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<td></td>
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<tr>
<td>10.55-11.25</td>
<td>Healthy Break and Posters</td>
<td>(attendees presenting posters P28 to P43 should be ready for discussion next to their posters)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.25-11.40</td>
<td>O9</td>
<td>What can we learn from video microscopically observation during electrochemical measurements of biodegradable metals?</td>
<td>Wolf-Dieter Mueller, T. Zimmermann, E. Zhang, N. Hort</td>
<td>Charité - Medical University Berlin, Germany</td>
</tr>
<tr>
<td>11.40-11.55</td>
<td>O10</td>
<td>Interfacial zinc phosphate is pivotal in biocompatibility of zinc implants</td>
<td>Donghui Zhu, Y. Zheng</td>
<td>University of North Texas, United States</td>
</tr>
<tr>
<td>11.55-12.10</td>
<td>O11</td>
<td>Understanding the role of silver in the electrochemical corrosion behaviour of a deformed twinning-induced plasticity steel for biodegradable stents</td>
<td>Sergio Loffredo, C. Paternoster, L. Marin de Andrade, N. Giguère, M. Vedani, D. Mantovani</td>
<td>Laval University, Canada</td>
</tr>
<tr>
<td>12.10-12.25</td>
<td>O12</td>
<td>Effect of magnetic field on the biocorrosion of ferrous biometals</td>
<td>Marta Multigner, C. Paternoster, A. J. Lopez, M. Muñoz, M. Lieblich, B. Torres, D. Mantovani</td>
<td>University Rey Juan Carlos, Spain</td>
</tr>
<tr>
<td>12.30-13.30</td>
<td>Lunch</td>
<td></td>
<td></td>
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<tr>
<td>14.00-20.00</td>
<td>Excursion</td>
<td></td>
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<tr>
<td>20.30-21.30</td>
<td>Dinner</td>
<td></td>
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</tbody>
</table>
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<table>
<thead>
<tr>
<th>Time</th>
<th>Code</th>
<th>Title</th>
<th>Assignee</th>
<th>Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.00-9.30</td>
<td>K4</td>
<td>In Vitro Study on Mechanical Properties and Corrosion Behaviors of Zn-Fe Composites</td>
<td>Yufeng Zheng, H. Yang, X. Qu, K. Dai</td>
<td>Peking University, China</td>
</tr>
<tr>
<td>9.30-9.35</td>
<td>SOP28</td>
<td>Influence of extracellular matrix compounds and cell metabolites on magnesium degradation</td>
<td>Reneé Unbehau, D. Laippie, L-L. Fockaert, B. Luthringer-Feyerabend, A. Mol, R. Willumeit-Römer</td>
<td>Helmholtz-Zentrum Geesthacht, Germany</td>
</tr>
<tr>
<td>9.35-9.40</td>
<td>SOP29</td>
<td>Importance of PLA/Mg films degradation in biofilm survival at mature stage</td>
<td>María Luisa González-Martín, D. Romero-Guzmán, M. C. Fernández-Calderón, M. Á, Pacha-Olivenza, A. M. Gallardo-Moreno</td>
<td>University of Extremadura, Spain</td>
</tr>
<tr>
<td>9.50-10.00</td>
<td></td>
<td>General discussion of SOP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.00-10.05</td>
<td>SOP32</td>
<td>Under cell culture conditions: exploring degradation behavior of different contents of intermetallics in Mg-Gd alloy</td>
<td>Yaping Zhang, Y. Huang, F. Feyerabend, K. U. Kainer, N. Hort</td>
<td>Helmholtz-Zentrum Geesthacht, Germany</td>
</tr>
<tr>
<td>10.05-10.10</td>
<td>SOP33</td>
<td>Antibacterial properties of magnesium-silver alloys in vitro</td>
<td>Mikhail Kiselevskiy, N. Anisimova, N. Martynenko, R. Willumeit-Römer, S. Dobatkin, Y. Estrin</td>
<td>National University of Science and Technology &quot;MISIS&quot;, Russian Federation</td>
</tr>
<tr>
<td>10.10-10.15</td>
<td>SOP34</td>
<td>Biodegradable Mg-Zn-Gd alloys for potential orthopaedic implants: In vitro and in vivo evaluations</td>
<td>H. Huang, D. Zhang, C. Chen, L. Zhang, Hongwei Miao, G. Yuan</td>
<td>Shanghai Jiao Tong University, China</td>
</tr>
<tr>
<td>10.15-10.20</td>
<td>SOP35</td>
<td>Bio conversion of various metal oxide doped fluorophosphate glass system: an animal study</td>
<td>Sankaralingam Pugalanthi Pandian, P. A S</td>
<td>Pandian Advanced Medical Centre Private Limited, India</td>
</tr>
</tbody>
</table>
10.20-10.25  SOP36  Assessing the interface ultrastructure of bone around biodegradable implants  
Berit Zeller-Plumhoff, D. Krüger, S. Galli, A. Wennerberg, R. Willumeit-Römer, F. Wieland, G. Campbell, C. Malich  
Helmholtz-Zentrum Geesthacht, Germany

10.25-10.40  General discussion of SOP

10.40-11.10  Healthy Break and Posters  
(attendees presenting posters P44 to P59 should be ready for discussion next to their posters)

11.10-11.25  O13  Strategies to control in-vitro degradation of Mg scaffolds processed by powder metallurgy  
Sandra C Cifuentes, L. Álvarez, E. Gordo, S. A Tsipas  
Carlos III University of Madrid, Spain

11.25-11.40  O14  Reactive Oxygen Species produced by the corrosion of Fe-based materials induce endothelial dysfunction  
Eleonora Scarcello, I. Lobysheva, C. Bouzin, P. J. Jacques, C. Dessy, D. Lison  
Université catholique de Louvain, Belgium

11.40-11.55  O15  The effect of magnesium alloys containing 2% and 4% silver on the viability, activity and cell cycle of tumor cells  
Natalia Anisimova, N. Martynenko, M. Kiselevskiï, R. Willumeit-Römer, S. Dobatkin, Y. Estrin  
National University of Science and Technology "MISIS", Russian Federation

11.55-12.10  O16  Zebrafish model for cytotoxicity evaluation of biodegradable metals  
Hyung-Seop Han, H-K. Seok, Y-C. Kim  
Korea Institute of Science and Technology, Republic of South Korea

12.10-12.25  O17  In Vivo study of magnesium AZ31 stent fabricated by photo-chemical etching  
Vesselin Shanov, B. S. P. K. Kandala, G. Zhang, C. Corriveau, M. Paquin  
The University of Cincinnati, United States

12.45-17.00  Lunch and free time

FINAL program, 11th Symposium on Biodegradable Metals (as of August 1, 2019)
Session 5 – In vivo
Chairpersons: Frank Witte & George Dias
Assignment Code: K=Keynote; O=Oral presentation; SOP=Short oral presentation

17.00-17.30  K5  Pre-clinical testing of magnesium implants: The challenges of testing human size implants in large animals
Stefan Beck, T. Imwinkelried, B. Schaller
Synthes GmbH, Switzerland

17.30-17.35  SOP36  Biocompatibility and in vivo osteogenesis effect of biodegradable magnesium alloy bone tissue engineering scaffolds
Guangyin Yuan
Shanghai Jiao Tong University, China

17.35-17.40  SOP37  Investigating in vivo Mg degradation as base for in vitro methodologies
David Hahn, A. Bruinink, N. G. Sommer, A. M. Weinberg, P. Schmutz
Medical University of Graz, Austria

17.40-17.45  SOP38  Surface coated hollow magnesium-strontium scaffolds for segmental defects regeneration: in vitro and in vivo studies
Lili Tan, K. Yang, C. Bai
Institute of Metal Research, Chinese Academy of Sciences, China

17.45-17.55  General discussion of SOP

17.55-18.00  SOP39  Use of pure and alloy magnesium metal filaments for peripheral nerve repair
The University of Cincinnati, United States

18.00-18.05  SOP40  In vitro and in vivo antibacterial properties of biodegradable ZK60 alloys by dual plasma immersion ion implantation
Ying Zhao, T. Liang, L. Zeng
Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, China

18.05-18.10  SOP41  Effects of biodegradable Mg-3.5Li-0.5Ca alloys on serum biochemical indices of mice
Dandan Xia, H. Guo, Y. Zheng
Peking University, China

18.10-18.15  SOP42  Characterization of corrosion products of an in vivo animal study with Mg membranes
Julia Bode, C. M. Gottschalk, H. Drücker, F. Witte, C. Vogt
Freiberg University of Mining and Technology, Germany

18.15-18.25  General discussion of SOP

18.25-18.55  Healthy Break and Posters
(attendees presenting posters P60 to P69 should be ready for discussion next to their posters)

18.55-19.10  O18  Fixation of a mandible fracture with magnesium implants: Is the miniature pig an adequate model to test human size implants?
Thomas Imwinkelried, B. Schaller, S. Beck
RMS Foundation, Switzerland

19.10-19.25  O19  Bioresorbable magnesium alloy suture anchors for supraspinatus tendon repair, a pilot test study in sheep
Medical University of Graz, Austria
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Title</th>
<th>Authors</th>
<th>Affiliation</th>
</tr>
</thead>
<tbody>
<tr>
<td>19.25-19.40</td>
<td>O20</td>
<td>Degradation performance of a MgZnCa alloy in different rat models</td>
<td>Nicole Sommer, D. Hirzberger, U. Y. Schwarze, P. Holweg, L. Berger, D. Hahn, N. Donohue, J. Löffler, A. M. Weinberg</td>
<td>Medical University of Graz, Austria</td>
</tr>
<tr>
<td>19.40-19.55</td>
<td>O21</td>
<td>In vivo effects of metallic zinc in the vascular environment</td>
<td>Roger Guillory, J. Drellich, J. Goldman</td>
<td>Michigan Technological University, United States</td>
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<td>21.00-0.00</td>
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<td>Conference dinner</td>
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</table>
SAES is a Group focusing its business on the development and production of advanced functional materials.

For more than 70 years, the specific characteristics of these proprietary materials has allowed the SAES Group to offer to the market engineered solutions, components and systems, nowadays adopted in many industrial and scientific applications.

The wide technological portfolio and the full vertically integrated production processes make SAES a world leader supplier of hi-tech and high quality solutions for markets spanning from consumer electronics, healthcare, automotive, flexible packaging, domotics up to scientific and research areas.

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Annually the Group assigns a high percentage of sales revenues to research and development activities. Thanks to this commitment, all over these years, SAES was capable to respond to the challenging technological needs of new and evolving markets.

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## Poster session

<table>
<thead>
<tr>
<th>Poster#</th>
<th>SOP#</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1</td>
<td>SOP1</td>
<td>A Coated Biodegradable Metallic Weave as a Bio-scaffold</td>
<td>Met-2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Johns Hopkins University, United States</td>
<td></td>
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<tr>
<td>P2</td>
<td>SOP2</td>
<td>Fe-Mg powder: processing, characterisation and comparison with pure Fe</td>
<td>Met-3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Marcela Lieblich, M. Multigner, J. L. Gonzalez-Carrasco, C. Rodríguez-Castañeda, P. de la Presa, J. Rams</td>
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<td></td>
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<td>CENIM-CSIC, Spain</td>
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<tr>
<td>P3</td>
<td>SOP3</td>
<td>Novel biodegradable alloys from the Zn-Ag-Mg system with enhanced</td>
<td>Met-4</td>
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<tr>
<td></td>
<td></td>
<td>strength and ductility</td>
<td></td>
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<tr>
<td></td>
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<td>Maria Watroba, W. Bednarczyk, K. Mech, G. Boelter, M. Banzhaf, P. Bala</td>
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<td>AGH University of Science and Technology, Poland</td>
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<tr>
<td>P4</td>
<td>SOP4</td>
<td>Sputtered ZnZr thin films for novel Zn-based vascular degradable stents</td>
<td>Met-5</td>
</tr>
<tr>
<td></td>
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<td>Fatiha Challali, F. Tetard, P. Djemia, M. N. Labour, V. Bockelée, A. Garcia</td>
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<td>Sanchez, M-P. Besland, F. Chaubet</td>
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<td>Paris 13 University, France</td>
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<tr>
<td>P5</td>
<td>SOP5</td>
<td>Development and characterisation of biodegradable zinc wire and staple for anastomosis application</td>
<td>Met-6</td>
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<tr>
<td></td>
<td></td>
<td>Hui Guo, Y. Zheng</td>
<td></td>
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<td></td>
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<td>Peking University, China</td>
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<tr>
<td>P6</td>
<td>SOP6</td>
<td>Friction stir processing of biodegradable Mg-Zn-Y-Nd alloy</td>
<td>Met-7</td>
</tr>
<tr>
<td></td>
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<td>Jun Wang, S. Zhu, Y. Sun, L. Wang, S. Guan</td>
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<td></td>
<td>Zhengzhou University, China</td>
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</tr>
<tr>
<td>P7</td>
<td>SOP7</td>
<td>Designing Bioresorbable Magnesium Alloys Using an Integrated Computational Materials Engineering (ICME) Approach</td>
<td>Met-8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Alan Luo, T. Avey, D. Dean</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>The Ohio State University, United States</td>
<td></td>
</tr>
<tr>
<td>P8</td>
<td>SOP8</td>
<td>Equal channel angular extrusion of dilute Mg-Zn-Ca alloys</td>
<td>Met-26</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Jenna Krynicki, S. E. Prameela, L. Wilkes, Z. Xu, M. Staiger, T. Weihs</td>
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<td>Johns Hopkins University, United States</td>
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<tr>
<td>P9</td>
<td>SOP9</td>
<td>The processing of Mg-Zn-Y-Nd alloy micro-tubes for biodegradable stent</td>
<td>Met-27</td>
</tr>
<tr>
<td></td>
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<td>Shijie Zhu, K. Guo, S. Guan</td>
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<td>Zhengzhou University, China</td>
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<tr>
<td>P10</td>
<td>SOP10</td>
<td>Effect of composition and equal-channel angular pressing on the structure and properties of medical magnesium alloys</td>
<td>Met-28</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Natalia Martynenko, V. Serebryan, D. Prosvirin, V. Terentiev, G. Raab, S. Dobatkin, Y. Estrin</td>
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<td>National University of Science and Technology &quot;MISIS&quot;, Russian Federation</td>
<td></td>
</tr>
<tr>
<td>P11</td>
<td>SOP11</td>
<td>Fracture behaviour of PEO/PLA coatings on AZ31 magnesium alloy</td>
<td>Met-29</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Marta Muñoz, S. Garcia, A. J. Lopez, B. Torres, J. Rams</td>
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<td>Rey Juan Carlos University, Spain</td>
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</table>
Effect of electroforming parameters on fabrication of biodegradable Fe-Mn alloys
M. Lotfollahi, Sofia Gambaro, C. Paternoster, D. Mantovani
Laval University, Canada

On improving the sinterability of MgCa, MgZn binary and Mg-Zn-Ca ternary alloys processed by powder metallurgy
Sandra C Cifuentes, L. A. Arias, E. Gordo, S. A. Tsipas
Carlos III University of Madrid, Spain

Qualification of ZnMgx Alloys for Additive Manufacturing of Bioreabsorbable Implants
Maximilian Voshage, P. Schueckler, L. Jauer, P. Wen, A. Kopp, J. H. Schleifenbaum
RWTH University, Germany

Selective laser melted functionally graded biodegradable porous iron
Delft University of Technology, Netherlands

Challenges in sintering of Mg-Gd alloy using master alloy powders and powder blends
Khausik Narasimhan, T. Ebel, M. Wolff, V. Mikhailovich Haramus, R. Willumeit-Römer
Helmholtz-Zentrum Geesthacht, Germany

Biodegradable low-alloyed zinc with enhanced properties subjected to complex deformation process
Anna Jarzębska, M. Bieda, Ł. Maj, M. Stręg, D. Wojtas, R. Chulist, Ł. Rogal, J. Guzpiel, W. Pachla, K. Sztwiertnia
Institute of Metallurgy and Materials Science Polish Academy of Sciences, Poland

3D Printed Zn-Mg Bioabsorbable Stents: a New Paradigm in Personalized coronary artery disease treatment
Laura Catalina Córdoba Román, C. Garcia Mintegui, M. Pegueroles Neyra
Institute for Bioengineering of Catalonia, Spain

Effect of Mn content on mechanical and corrosion properties of Fe-Mn alloys for biological applications
Jannis Nicholas Lemke, J. Fiocchi, S. Zilio, A. Tuissi, A. Coda
SAES Getters S.p.A., Italy

Improved mechanical performance of biodegradable Mg WE43 alloy via processing by ECAP and rotary swaging
Francesco D’Elia, C. Zimmermann, I. Schestakow, A. Kopp
Meotec GmbH & Co. KG, Germany

Laser welding of Fe-Mn-C alloy for biodegradable metallic implants: mechanical response and degradation behavior
Jacopo Fiocchi, C. A. Biffi, S. Gambaro, C. Paternoster, D. Mantovani, A. Tuissi
ICMATE-National Research Council, Italy

Effect of Friction Stir Processing on biodegradability of Mg-2%Ca alloy
Corentin Velard, J-J. Blandin, E. Ferrie, V. Roche, A. Simar
Grenoble Institute of Engineering, France

Biocompatibility of a Work Hardened Mg-1.2Zn-0.5Ca-0.5Mn Alloy for Skeletal Fixation Devices
A. Chmielewska, David Dean, A. Luo
The Ohio State University, United States
Preparation and Characteration of Piezoelectric Polyhydroxybutyrate Film on the Micro-arc Oxidation Coated Magnesium alloy Surface  
Guoxin Tan  
Guangdong University of Technology, China

Hybrid design strategy for accelerated development of biodegradable magnesium alloy implants  
B. Nowak, Anton Good, G. Dias, M. Staiger  
University of Canterbury, New Zealand

Electrospinning of biodegradable metal-reinforced biopolymer  
A. Leones, Marcela Lieblich, R. Benavente, J. L. Gonzalez-Carrasco, L. Peponi  
CENIM-CSIC, Spain

Effect of nitrogen ion implantation on the corrosion behavior of bioabsorbable Fe-Mn-Ag alloy  
P. Sotoudeh-Bagha, Sofia Gambaro, C. Paternoster, M. Khakbiz, S. Sheibani, D. Mantovani  
Laval University, Canada

In vitro evaluation of novel biodegradable Zn Ag Mg alloy  
Ana Laura Ramirez-Ledesma, F. Copes, C. Paternoster, D. Mantovani  
Laval University, Canada

In vitro corrosion behaviour of magnesium in simulated body fluids: the influence of individual components  
Di Mei, S. Lamaka, M. Zheludkevich  
Helmholtz-Zentrum Geesthacht, Germany

Enhancing the corrosion resistance and biocompatibility of pure Mg surface through formation of Mg-Fe layered double hydroxide  
Her-Hsiung Huang, Y-S. Sun, J-Y. Uan, H-H. Ku  
National Yang-Ming University, Taiwan (Republic of China)

Investigation of the effect of albumin on corrosion and corrosion-assisted cracking for a lean magnesium alloy  
ETH Zürich, Switzerland

Optimisation of the corrosion rate of Fe-based alloys for bioreosorbable stent applications by surface acidification  
Université catholique de Louvain, Belgium

Microstructure of a Si contaminated Mg-Zn-Ca alloy and the corrosion behaviour observation via an in-situ approach  
Yiming Jin, F. Feyerabend, C. Blawert, B. Wiese, R. Regine Willumeit-Römer  
Helmholtz-Zentrum Geesthacht, Germany

Buffer-induced in vitro corrosion of magnesium alloys: Residual torsional strength of implant devices  
Anton Good, R. Wilkes, B. Nowak, M. Staiger

Mathematical modeling of biodegradation of metal implants in orthopedics  
Mojtaba Barzegari, L. Geris  
KU Leuven, Belgium
P36 SOP24 Research on crevice corrosion behaviors of biomedical Mg
Wenhui Wang, X. Zhang, H. Wu, B. Chen, J. Ni, P. Han, S. Zhang
Shanghai Jiao Tong University, China

P37 SOP25 Immersion and Stress Corrosion of Mg10Gd(1Nd) screws compared to AZ91
Petra Maier, R. Peters, N. Hort
University of Applied Sciences Stralsund, Germany

P38 SOP26 In-vitro measurement setup for simultaneous assessment of degradation and dissolution
Christian Redlich, A. Strauß, P. Quadbeck
Fraunhofer Institute for Manufacturing Technology and Advanced Materials, Germany

P39 Impact of etching on the degradation of Mg-Gd alloys
Björn Wiese, M. M. Gawlik, T. Ebel, R. Willumeit-Römer
Helmholtz-Zentrum Geesthacht, Germany

P40 Enhanced corrosion resistance and biocompatibility of Mg-Zn-Y-Nd alloy with two-step alkali-fluoride treatment: In vitro and in vivo studies
Pei Wang, Y. Cheng, T. Xi
Peking University, China

P41 Pure Zn degradation in Hanks', phosphate buffer and NaCl saline solutions
C. Paternoster, Ana Laura Ramirez Ledesma, S. Ould Mohamed, D. Mantovani
Laval University, Canada

P42 Electrochemical functionalization of biometals for cell-selective fully metallic medical devices
Myoung-Ryul Ok
Korea Institute of Science and Technology, Republic of South Korea

P43 Corrosion assessment of ternary NiTi shape memory alloy for orthodontic application in 0.9 NaCl solution
Camila Barros, J. Ponciano Gomes
COPPE/UFRJ, Brazil

In Vitro

P44 SOP27 Influence of extracellular matrix compounds and cell metabolites on magnesium degradation
Reneé Unbehau, D. Laipple, L-L. Fockaert, B. Luthringer-Feyerabend, A. Mol, R. Willumeit-Römer
Helmholtz-Zentrum Geesthacht, Germany

P45 SOP28 Importance of PLA/Mg films degradation in biofilm survival at mature stage
María Luisa González-Martín, D. Romero-Guzmán, M. C. Fernández-Calderón, M. Á, Pacha-Olivenza, A. M. Gallardo-Moreno
University of Extremadura, Spain

P46 SOP29 Response of human periosteal cells on zinc or zinc-silver alloy extracts
University Hospital Tübingen, Germany

P47 SOP30 Comparison of zinc- and magnesium-based scaffold structures for orthopedic applications
Meotec GmbH & Co. KG, Germany
**P48** SOP31 **Under cell culture conditions: exploring degradation behavior of different contents of intermetallics in Mg-Gd alloy**
Yaping Zhang, Y. Huang, F. Feyerabend, K. U. Kainer, N. Hort
Helmholtz-Zentrum Geesthacht, Germany

**P49** SOP32 **Antibacterial properties of magnesium-silver alloys in vitro**
Mikhail Kiselevskiy, N. Anisimova, N. Martyenko, R. Willumeit-Römer, S. Dobatkin, Y. Estrin
National University of Science and Technology "MISIS", Russian Federation

**P50** SOP33 **Biodegradable Mg-Zn-Gd alloys for potential orthopaedic implants: In vitro and in vivo evaluations**
H. Huang, D. Zhang, C. Chen, L. Zhang, Hongwei Miao, G. Yuan
Shanghai Jiao Tong University, China

**P51** SOP34 **Bio conversion of various metal oxide doped fluorophosphate glass system: an animal study**
Sankaralingam Pugalanthi Pandian, P. A S Pandian Advanced Medical Centre Private Limited, India

**P52** SOP35 **Assessing the interface ultrastructure of bone around biodegradable implants**
Bert Zeller-Plumhoff, D. Krüger, S. Galli, A. Wennerberg, R. Willumeit-Römer, F. Wieland, G. Campbell, C. Malich
Helmholtz-Zentrum Geesthacht, Germany

**P53** SOP36 **In vitro assessment of magnesium-based material with antitumour activity**
Philipp Globig, B. Luthringer-Feyerabend, F. Martini, E. Mazzoni, R. Willumeit-Römer
Helmholtz-Zentrum Geesthacht, Germany

**P54** SOP37 **Biocompatibility evaluation of degradable PLA/Mg films for medical applications**
Ana Ferrández-Montero, C. A. Grillo, B. Ferrari, M. Lieblich, J. L. Gonzalez-Carrasco, M. Fernández Lorenzo
Institute of Ceramic and Glass, Spain

**P55** SOP38 **Assessment of biodegradation of Zn and Fe using a combination of electrochemical measurements with surface and solution analysis**
Wolf-Dieter Mueller, P. Kunert, D. Mantovani, J. Drelich
Charité - Medical University Berlin, Germany

**P56** SOP39 **Physical and biological characterization of biodegradable electropolished iron-based alloys**
Marlène Durand, A. Purnama, M. Renard, M. Meulle, L. Bordenave, D. Mantovani
CHU of Bordeaux, France

**P57** SOP40 **Dynamic in vitro hemocompatibility evaluation of zinc-copper alloy acid films prepared by solvent casting**
University Hospital Tübingen, Germany

**P58** SOP41 **Initial bacterial approach to biodegradable magnesium-doped poly(lactic) acid films prepared by solvent casting**
University of Extremadura, Spain

**P59** SOP42 **Screw thread and drive performance of bioabsorbable magnesium implant screws**
Kilian Reuß, P. Kobbe, R. Burchhard, C. Ihle
Medical Magnesium GmbH, Germany
In Vivo

P60  SOP38  Biocompatibility and in vivo osteogenesis effect of biodegradable magnesium alloy bone tissue engineering scaffolds  
Guangyin Yuan  
Shanghai Jiao Tong University, China

P61  SOP39  Investigating in vivo Mg degradation as base for in vitro methodologies  
David Hahn, A. Bruinink, N. G. Sommer, A. M. Weinberg, P. Schmutz  
Medical University of Graz, Austria

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Lili Tan, K. Yang, C. Bai  
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The University of Cincinnati, United States

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Ying Zhao, T. Liang, L. Zeng  
Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, China

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Dandan Xia, H. Guo, Y. Zheng  
Peking University, China

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Julia Bode, C. M. Gottschalk, H. Drucker, F. Witte, C. Vogt  
Freiberg University of Mining and Technology, Germany

P67  SOP45  In vivo comparison of ultrahigh-purity MgZnCa screws in ovine tibiae  
ETH Zürich, Switzerland

P68  SOP46  In Vitro and In Vivo Evaluation of TWIP steel for Endovascular Stents  
Université catholique de Louvain, Belgium

P69  SOP47  Mechanical response of high-strength Mg-Ca alloy nail penetrating bone tissue  
N. Ikeo, J. Shimizu, Y. Sano, Y. Shimizu, Toshiji Mukai  
Kobe University, Japan