BIOMETAL 2022 Advanced Program as of Aug 12th

Note: This is a tentative advanced program, for planning and preparing the conference. Onsite, and online, during the event, we invite all attendees to consider as final the online program. Should you find some discrepancies between what you expect an you find, or typos, or modifications, then please contact d diego.mantovani@gmn.ulaval.ca

Thursday, August 25, 2022

Workshop

Chairs: Frank Witte & Diego Mantovani
AV support: Masoud & Leticia

9h00	**Introductory remarks (DM, FW)**	
9h30	IP1	Plenary Academic Advance: **The invention of tailorable, ultrahigh-purity, lean magnesium alloys for biodegradable im applications** Jörg Löffler *ETH Zürich, Switzerland*
10h30	IP2	**Update of resorbable metal in dentistry: the NOVAMag® regeneration system** Svenja Rogge, Ž.P. Kačarević , P. Rider, D. Tadic *Botiss Medical AG, Germany*
11h15-11h45	**Break**	
11h45	IP3	Geographical Sector Vision: **Update on translational projects in China** Yufeng Zheng *Peking University, China*
12h30	**Lunch & Free Time**	

Chairs: Diego Mantovani & Frank Witte
AV support: Souhila & Vinicius

14h00	IP4	Industrial Point of View: **Update and Clinical Results** Kimmo Lahteenkorva and Christopher Stahle *Bioretec, Finland*
14h45	IP5	Regulatory point of view: **Updates on Standardization in Bioabsorbable Metals** Adam Griebel *Fort Wayne Metals, United States*
15h30	IP6	**The challenges and solutions for biodegradable Zinc-based alloys from the aspect of clinical transformation** Guangyin Yuan *National Engineering Research Center of Light Alloy Net Forming and State Key Laboratory of Metal Matrix Composites, China*
16h15-16h45	**Break**	
16h45	IP7	**God results - Bad results** Norbert Hort and P. Maier *Helmholtz-Zentrum Hereon, Germany*
17h30	IP8	**20 years of commercializing nanomedicine: From biodegradable metals to selfassembled nanomaterials for fighting COVID-19, inhibiting infection, killing cancer, and regenerating tissues** Thomas Webster *Hebei University of Technology, China*
18h15	**Discussion**	
19h00	**End of the UPDATE Workshop at the 14th Biometal 2022**	
19h30-21h00	**Dinner**	

Friday, August 26, 2022

Session 1 – Metals

Chairs: Norbert Hort & Sandra Cifuentes
AV support: Nguyen & Samira
Assignation Code: K=Keynote; O=Oral presentation; SOP=Short oral presentation

8h20-8h30	**Introductory remarks (DM, FW)**	
8h30-9h10	K1	**Nanoindentation to characterize hardness changes by flaring of mini-tubules** Petra Maier, M. Schmahl, B. Clausius, C. Joy, C. Fleck *University of Applied Sciences Stralsund, Germany*

9h10-9h30	O1	**Improving the trackability of biodegradable metals by dual radiopaque bioresorbable coatings and X-Ray filtration** Samira Ravanbakhsh, C. Paternoster, P. Chevallier, M. Fortin, D. Mantovani *Laval University, Canada*
9h30-9h50	O2	**Development of two new Mg-Li-Y alloy wires for application in bioresorbable medical devices** Kenneth MacLeod, D. Nash, D. Bow *University of Strathclyde, United Kingdom*
9h50-10h10	O3	**Multiscale hard-soft structured Zn-Cu-Li alloy with high strength and ductility for biodegradable implants** Xiyuan Zhang, Z. Gao, J. Niu, G. Yuan *National Engineering Research Center of Light Alloy Net Forming and State Key Laboratory of Metal Matrix Composites, China*
10h10-10h15	SOP1	**Effect of processing conditions on mechanical and in vitro degradation behavior of magnesium WE43 alloy wires** Wahaaj Ali, L. Tillmann, T. Mayer, A. Kopp, C. González,J. Llorca *IMDEA Materials, Spain*
10h15-10h20	SOP2 / P1	**Binder Jetting additive manufacturing of the bioresorbable WE43 alloy: Challenges encountered in post-process sintering** Agnieszka Chmielewska, T. Avey, D. Cho, A. Luo, D. Dean *The Ohio State University, United States*
10h20-10h25	SOP 3	**Study on mechanical properties, degradation properties and biocompatibility of Zn-RE binary alloys** S. Du, D.Xia, Yufeng Zheng, X.Xu *Peking University, China*
10h25-10h30	SOP4/P2	**Microstructure and mechanical stability of biodegradable low-alloyed zinc for biomedical applications** Magdalena Wróbel, A Jarzębska, Ł Maj, Ł Rogal, P. Petrzak, M. Kulczyk, M. Bieda *Institute of Metallurgy and Materials Science of Polish Academy of Sciences, Poland*
10h30-10h50	**SOP Discussion**	
10h50-11h20	**Break**	
11h20-11h40	O4	**Effect of groove pressing technique on the degradation rate of pure Mg** Manas Ranjan Sahu, T. S. S. Kumar, U. Chakkingal *Indian Institute of Technology, India*
11h40-12h00	O5	**3D printed Mg-based scaffolds for temporary bone replacement applications** Maria-Dolores Martin-Alonso, G. Dominguez, M. Li, M. Echeverry-Rendon, F. Benn, A. Kopp, J. Llorca, J. Molina-Aldareguia, F. Sket *IMDEA Materials, Spain*
12h00--12h20	O6	**Powder bed fusion of a biodegradable magnesium alloy: the effect of laser scan strategy and build direction on microstructure mechanical properties** Lisa Larsson, F. D'Elia, C. Persson *Uppsala University, Sweden*
12h20-12h40	O7	**Biodegradation of powder metallurgical (PM) processed Mg ZX10-alloy for biomedical application** Martin Wolff, M. Luczak, H. Helmholz, D. Strerath, T Ebel, R. Willumeit-Römer *Helmholtz-Zentrum Hereon, Germany*
12h40-13h00	O8	**Adjusting mechanical properties of lean Mg alloys via hot extrusion: a wide range of strength and ductility** Tatiana Akhmetshina, L. Berger, S. Montibeller, R. Schäublin, J.F. Löffler *ETH Zurich,Switzerland*
13h00-13h20	O9	**Assessment of extruded magnesium tubing for absorbable stent production** Adam Griebel, G. Hayes, R. Werkhoven, R. Menze, S. Ahlers, J. Schaffer *Fort Wayne Metals Research Products Corp., United States*
13h20-14h50	**Lunch & Free Time**	

Session 2 – Metals

Chairs: Petra Maier & Alberto Coda

AV support: Masoud & Leticia

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

15h00-15h20	O10	**Influence of PEO coating parameters on coating thickness and topography** Thomas Imwinkelried, A. Walser, L. Berger, W. Rubin, J. F. Löffler *RMS Foundation, Switzerland*
15h20-15h40	O11	**Evaluation of bioresorbable squeeze cast Mg-Zn-Ca-Mn alloys** Dae Hyun Cho, T. Avey, D. Dean, A. A. Luo *The Ohio State Universit, United States*
15h40-16h00	O12	**Influence of micro-blasting on biodegradable iron-based stent structures** Birgit Paul, A. Hofmann, M. Otto, U. Wolff, C. Reeps, J. Hufenbach *Institute for Complex Materials, Germany*
16h00-16h20	O13	**Influence of Mn content on the chemical composition, electrochemical behavior, and morphology of oxygen plasma immersion implanted FeMnC alloys** Leticia Marin de Andrade, C. Paternoster, P. Chevallier, D. Mantovani

Laval University, Canada

16h20-16h40 O14

Surface modifications of pure Zinc by plasma immersion ion implantation surface oxidation for biomedical applications
Souhila Ould Mohamed, H. Agbe, C. Paternoster, A. Sarkissian, D. Mantovani
Laval University, Canada

16h40-17h00 O15

ECAP processing influence on the mechanical properties and the bacterial activity of Zn-2Ag alloys

Claudia García-Mintegui, I. S. Goncharov, L. Ortiz-Membrado, E. Jimenez-Piqué, M. Vedani, J.L. Cortina, M. Pegueroles
Technical University of Cataloni, Spain

17h00-17h30 Break

17h30-17h50 O16

Embrittlement of thin magnesium wires during PEO coating
L. Pricolo, Thomas Imwinkelried
RMS Foundation, Switzerland

17h50-18h10 O17

Surface modification of a biodegradable Mg-Y-Zn-Mn alloy by oxygen plasma immersion ion implantation
Masoud Shekargoftar, S. Ravanbakhsh, V.S. Oliveira, C. Paternoster, F. Witte, D. Mantovani
Laval University, Canada

18h10-18h30 O18

Electrical resistance testing for biodegradable magnesium implants
Sebastian Meyer, B. Wiese, N. Hort, R. Willumeit-Römer
Helmholtz-Zentrum Hereon, Germany

18h30-18h50 O19

Electroforming process for Fe-Mn alloy fabrication using deep eutectic solvents
Vinicius .F. Sales, C. Paternoster, D. Mantovani, G. Kolliopoulos
Laval University, Canada

18h50-19h10 O20

In situ thermo-mechanical processing in a synchrotron beam of a Mg-2Y-1Zn-1Mn alloy
Domonkos Tolnai, S. Gavras, A. Stark, M. Bartosch, F. Witte, N. Hort
Helmholtz-Zentrum Hereon, Germany

19h10-19h30 O21

Coupled growth in Zn-based alloys with Mg additions produced by casting in steel mold of square section
Luis Angel Domínguez, A. Ramírez, J.S. Flores, J.A. Juárez, C. Paternoster, D. Mantovani
Universidad Nacional Autónoma de México, México

20h-21h30 Dinner

21h30-23h00 Poster Session

21h30-22h15 Poster session 1 (**odd-numbered** posters)
22h15-23h00 Poster session 2 (**even-numbered** posters)

P1 / SOP2

Binder Jetting additive manufacturing of the bioresorbable WE43 alloy: Challenges encountered in post-process sintering
Agnieszka Chmielewska, T. Avey, D. Cho, A. Luo, D. Dean
The Ohio State University, United States

P2/SOP4

Microstructure and mechanical stability of biodegradable low-alloyed zinc for biomedical applications

Magdalena Wróbel, A Jarzębska, Ł Maj, Ł Rogal, P. Petrzak, M. Kulczyk, M. Bieda
Institute of Metallurgy and Materials Science of Polish Academy of Sciences, Poland

P3

Influence of alloying and plastic deformation on microstructure and mechanical properties of biodegradable low-alloyed zinc fo orthopaedic applications
Magdalena Bieda, A. Jarzębska, M. Wróbel, Ł. Maj, Ł. Rogal, J. Skiba
Institute of Metallurgy and Materials Science of Polish Academy of Sciences, Poland

P4

Process development for additive manufacture of zinc-based biomedical substitutes
Esmat Sheydaeian, A. Marquardt, L. Stepien, E. Lopez, F. Brückner, C. Leyens
Fraunhofer Institute for Material and Beam Technology (IWS), Germany

P5

Effect of magnetic field on degradation of ferrous alloys in modified Hanks' solution at 37ºC

Irene Limón, M. Multigner, M. Lieblich, C. Paternoster, D. Mantovani, J. Rams, B. Torres
Universidad Rey Juan Carlos,Spain

P6

Optimization of attrition milling and Spark Plasma Sintering consolidation of Fe5Mg and its degradation behaviour

Rafael G. Estrada, M. Multigner, S. C. Cifuentes, B. Torres, J. Rams, M. Lieblich
CENIM-CSIC, Spain

P7

The study of surface modifications generated by plasma immersion ion implantation on zinc alloys for biomedical applications
Souhila Ould Mohamed ,*C. Paternoster , D. Mantovani*
Laval University, Canada

P8

PMMA-coating of biodegradable pure Zinc, pure Magnesium and their alloys through grafting-from technique
Nicolas Lallemand, F. Mouillard, Alia A. Diaa, N. El-Mahallawy, P. Masson, H. Palkowski, A. Carradò
Université de Strasbourg,France

P9

Comprehensive study of degradation behaviour of zinc alloys subjected to hybrid plastic deformation
Anna Jarzębska, H. Helmholz, M. Wróbel, M. Bugajska, A. Bigos, S. Przybysz, R. Willumeit-Römer, M. Bieda
Polish Academy of Sciences, Poland

P10

Characterisation and assessment of corrosion rate of TiO2 coated WE43 produced by atomic layer deposition
Clara Grace Hynes, Z. Ghaferi, S. Malinov, A. Flanagan, F. Buchanan
Queen's University Belfast, Ireland

	P11 / SOP4	**Effect of Zn/Ca Ratio on Corrosion and Mechanical Properties of Mg-Zn-Ca-Mn Biodegradable Alloys** Thomas Avey, D. H. Cho, D. Dean, A. A. Luo *The Ohio State Universit, United States*
	P12 / SOP5	**In vitro and in vivo corrosion behavior and biocompatibility of biodegradable HA coated ZK60 alloy** L. V. Hai, D.T. H. Hanh, L.e Hanh, V. N. Dinh, Nguyen Viet Nam *Institute of Traumatology and Orthopaedics - Military Central Hospital, Vietnam*
	P13	Cellular biocompatibility of different calcium phosphate coatings formed on ZK60 magnesium alloy Le Thi Trang , N. Q. Cao, S.Hiromoto , O. Minho, E. Kobayashi *Tokyo Institute of Technology, Japan*
	P14	**Characterization of MgF_2 conversion coating on Mg-2Y-1Mn-1Zn screws** S. Gambaro, L. Nascimento, M. Shekargoftar, Samira Ravanbakhsh, V. Oliviera Sales, C. Paternoster,D. Mantovani, M. Bartosch,F. Witt *Laval University*

Saturday, 27 August 2022

Session 3 – Corrosion

Chairs: Heinz Palkowski & Marta Multigner
AV support: Vinicius & Souhila
Assignation Code: K=Keynote; O=Oral presentation; SOP=Short oral presentation

8h30-9h10	K2	**Oxygen consumption during Mg alloy biodegradation is alloy and immersion medium dependent** Berit Zeller-Plumhoff, A.R. Akkineni, H.Helmholz, D. Orlov, M. Mosshammer, M. Kühl, M. Gelinsky, R.Willumeit-Römer *Helmholtz-Zentrum Hereon, Germany*
9h10-9h30	O23	**A higher PBF-LB power gives a higher density but a lower corrosion resistance of Mg-Y-Nd-Zr** H. N. Åhman, C. Wahman, P. Mellin, Cecilia Persson *Uppsala University, Sweden*
9h30-9h50	O24	**Microstructural, mechanical and biodegradation properties of as-cast and hot forged Fe-Mn-C alloys** Martin Otto, A. Gebert, B. Paul, J. Freudenberger, J. Hufenbach *Leibniz IFW Dresden, Germany*
9h50-10h10	O25	**Local oxygen concentration above Mg alloys exposed to Hanks' Balanced Salt Solution at 37 °C differs significantly that at room temperature** Cheng Wang, M. Zheludkevich, S. Lamaka *Helmholtz-Zentrum Hereon, Germany*
10h10-10h30	O26	**Strain distribution in deformed and degraded Mg10Gd using synchrotron radiation based 2D XRD** Birte Hindenlang, F. Wieland, Domonkos Tolnai, J. Bohlen, R. Willumeit-Römer *Helmholtz-Zentrum Hereon, Germany*
10h30-10h50	O27	**The in vitro biodegradation behaviour of as extruded pure Zn, Zn-1.89Mg and PMMA coated Zn-1.89Mg** A. A. Diaa , N. El-Mahallawy, M. Shoeib, N. Lallemand, P. Masson, Adèle Carradò *Université de Strasbourg, France*
10h50-11h10	O28	**Linking geometrical degradation phenomena with the mechanical integrity of rare earth magnesium alloy for implar** Kerstin van Gaalen, C. Quinn , F. Benn, P. E. McHugh, A. Kopp, T. J. Vaughan *National University of Ireland Galway, Ireland*
11h10-11h40	**Break**	
11h40-12h00	O29	**Investigation of the biodegradation of Mg-based alloys using in situ SRnanoCT** Jan Reimers, H. C. Trinh, S. Flenner, J. Hagemann, H. Cwieka, B. Hindenlang, I. Greving, R. Willumeit-Römer, B. Zeller-Plumhoff *Helmholtz-Zentrum Hereon, Germany*
12h00-12h20	O30	**Local conditions at Zn alloy interface in buffered Hank's Balanced Salt Solution** C. Wang, X. Liu, D. Mei, M. Deng, Y. Zheng, M.L. Zheludkevich, Sviatlana Lamaka *Helmholtz-Zentrum Hereon, German*
12h20-12h40	O31	**Degradation behavior of biodegradable Fe-based alloys in albumin-enriched pseudo-physiological solutions** Quang Nguyen Cao, A. Cherqaoui, P. Mengucci, C. Paternoster, D.Mantovani *Laval University, Canada*
12h40-13h00	O32	**High resolution X-ray imaging of degradation and osseointegration of Mg-5Gd and Mg-10Gd screws implanted in rat tibia** Hanna Ćwieka, B. Zeller-Plumhoff, I. Baltruschat, J. Moosmann, R. Willumeit-Römer *Helmholtz-Zentrum Hereon, Germany*
13h00-13h20	O33	Cellular biocompatibility of different calcium phosphate coatings formed on ZK60 magnesium alloy Le Thi Trang , N. Q. Cao, S.Hiromoto , O. Minho, E. Kobayashi *Tokyo Institute of Technology, Japan*
13h20-13h25	SOP 4 / P11	**Effect of Zn/Ca Ratio on Corrosion and Mechanical Properties of Mg-Zn-Ca-Mn Biodegradable Alloys** Thomas Avey, D. H. Cho, D. Dean, A. A. Luo *The Ohio State Universit, United States*
13h25-13h30	SOP5 / P12	**In vitro and in vivo corrosion behavior and biocompatibility of biodegradable HA coated ZK60 alloy**

L. V. Hai, D.T. H. Hanh, L.e Hanh, V. N. Dinh, Nguyen Viet Nam
Institute of Traumatology and Orthopaedics - Military Central Hospital, Vietnam

13h30-13h50 **SOP Discussion**

13h50-15h20 **Lunch**

16h **Departure by walk to Aloha Sport Beach Club at Playa San Juan**
17h00-19h30 **Beach & Water Activities**
19h30- 20h30 **Cocktails**
20h30- midnight **Tapas & Drinks on the beach under the stars**

Sunday,28 August 2022

Session 4 – In-vitro

Chairs: Adele Carradò & Joseph Buhagiar
AV support: Masoud & Nguyen
Assignation Code: K=Keynote; O=Oral presentation; SOP=Short oral presentation

8h00-8h40 K3
Magnesium-fiber reinforced bone cement with enhanced mechanical properties
Andrea Rich, R. Deller, B. Helgason, S.J. Ferguson, C. Persson, J.F. Löffler, L. Berger
ETH Zurich, Switzerland

8h40-9h00 O34
Towards the development of a biodegradable metallic ureteral stent: Characterizing the corrosion and encrustation tendency o alloys under in vitro urinary tract conditions
Margarida Pacheco, I.M. Aroso, J.M. Silva, S.V. Lamaka, M. Zheludkevich, J. Bohlen, M. Nienaber, D. Letzig, C.J. Hassila, C. Persson, I A.A. Barros, R.L. Reis
University of Minho,Portugal

9h00-9h20 O35
In vitro and in vivo degradation and biocompatibility of Mg-based intermetallic particles
Hongyan Y. Tang, W.T. Lin, Y. Zhao, X.N. Gu, Y.B. Fan
School of Bio-logical Science and Medical Engineering, China

9h20-9h40 O36
Bovine serum albumin additions in Hanks' solutions: Effect on the corrosion mechanism of powder-processed FeM
Christabelle Tonna, J. Buhagiar
University of Malta, Malta

9h40-9h45 **Switch from In-vitro Session to In-vivo Session**

Session 5 – In vivo

Chairs: Frank Witte & Regine Willumeit-Roemer
Av support: Masoud & Nguyen
Assignation Code: K=Keynote; O=Oral presentation; SOP=Short oral presentation

9h45- 10h25 K4
Comparative tissue performance of Mg alloys in an atherosclerotic in vivo vascular model using multimodal imagin
M. Kwesiga, A. Griebel, Roger J. Guillory II
Michigan Technological University, United States

10h25-10h45 O37
***In-vivo* results of NOVAMag® fixation screw XS performance study**
Patrick Rider, Ž.P. Kačarević, A. Elad, D. Rothamel, G. Sauer, F. Bornert, P. Windisch, D. Hangyási, B. Molnar, B. Hesse, M Assad, F. Witte, S. Rogge, D. Tadic
Botiss biomaterials, Germany

10h45-11h15 **Break**

11h15-11h35 O38
RF-induced heating of biodegradable magnesium-based implants during MRI
Jonathan Espiritu, M. Berangi, H. Cwieka, K. Iskhakova, A. Kuehne, B. Zeller-Plumhoff, F. Wieland, T. Niendorf, R. Willumei
Syntellix AG, Germany

11h35-11h55 O39
Analysis of the bone microarchitecture around biodegradable Mg-10Gd implants
Sandra Sefa, D. C. F. Wieland, R. Willumeit-Römer, J. Espiritu, H. Cwieka, I. Greving, S. Flenner, B. Zeller-Plumhoff
Helmholtz Zentrum Hereon, Germany

11h55-12h15 O40
In vitro and in vivo degradation performance of ZX00 screw for bone implants applications
Diana C. Martinez, A. Dobkowska, R. Marek, J. Jaroszewicz, T. Plocinski, H. Helmholz, R. Willumeit, W. Swieszkowski
Warsaw University of Technology, Poland

12h15-12h35 O41
Long term degradation performance of Mg-Zn-Ca ESIN in a sheep model
Romy Marek, U. Kronsteiner, U. Schwarze, S. Fischerauer, A. M. Weinberg
Medical University of Gra, Austria

12h35-12h55 O42
Bone healing around biodegradable Magnesium implants: Differential response between interfacial and near-implant bone in vivo
Heithem Ben Amara, D.C. Martinez, F.A. Shah, T. Plocinski, W. Swieszkowski, A. Palmquist, O. Omar, P. Thomsen
University of Gothenburg, Sweden

12h55-13h15 O43
Degradable magnesium alloy suture promotes fibrocartilaginous interface regeneration in a rat rotator cuff transosseous repair mode
B. Zhang, W. Zhang, Lili Tan, Q. Zhang, K. Yang
Institute of Metal Research, Chinese Academy of Sciences, China

13h15-13h35 O44
Biocompatibility and Degradation Behavior of Molybdenum in an In Vivo Rat Model
Christian Redlich, A. Schauer, Georg Poehle, V. Adams, P. Quadbeck

Fraunhofer Institute for Manufacturing Technology and Advanced Materials IFA, Germany

13h35-13h55 O45

In vivo comparison of ultrahigh-purified lean Mg alloys and rare-earth-containing WE43
Leopold Berger, S. Dolert, T. Akhmetshina, J.P. Burkhard, M. Tegelkamp, A.M. Rich, W. Rubin, S. Darwiche, G. Kuhn, B. vc Rechenberg, B. Schaller, K. Nuss, J.F. Löffler
ETH Zuric, Switzerland

13h55-15h00 Lunch

Session 6 – In-vivo

Chairs: Diana Martinez & Frank Witte
AV support: Samira & Souhila
Assignation Code: K=Keynote; O=Oral presentation; SOP=Short oral presentation

15h00-15h40 K5

In situ reservoir for continuous evolution of H_2 gas to regulate ROS-Warburg Effect Axis for tumor therapy
Qingqing Guan, Z. Yang, J. Tan, G. Yuan, J. Pei, W.Ding
Shanghai Jiao Tong University, China

15h40-16h00 O46

BioMg 250 – Results on in vivo animal model
Tony Melkent, R. Decker, S. Lebeau
nanoMAG,United States

16h00-16h20 O47

In-vivo results of NOVAMag® membrane performance study
P. Rider, Željka P. Kačarević, A. Elad, D. Rothamel, G. Sauer, F. Bornert, P. Windisch, D. Hangyási, B. Molnar, B. Hesse, M Assad, F. Witte, S. Rogge, D. Tadic
Botiss biomaterials, Germany

16h20-16h40 O48

FeMn and FeMnAg biodegradable alloys: A biological in vitro and in vivo investigation
L. Saliba, K. Sammut, C. Tonna, F. Pavli, V. Valdramidis, Joseph Buhagiar, P. S. Wismayer
University of Malta, Malta

16h40-17h00 O49

Preclinical biocompatibility assessment of high-strength and corrosion-controlled magnesium-based bone implants
C. Billings, M. Abdalla, D. Anderson, Hamdy Ibrahim
University of Tennessee at Knoxville, United States

17h00-17h20 O50

Potential clinical scenarios of bioabsorbable zinc as bone implants
Hongtao Yang, Y. Zheng, B. Jia, X. Qu, K. Dai
Beihang University, China

17h20-17h50 Break

17h50-18h10 O51

In-vivo study of additively manufactured Mg lattices in a large animal model
Felix Benn, R. Smeets, S. Malinov, A. Kopp
Queen's University Belfast, United Kingdom

18h10-18h30 O52

The effect of zinc and calcium on magnesium's biodegradation
Begüm Okutan, U.Y. Schwarze, L. Berger, V. Herber, O. Suljevi1, J.F. Löffler, A.M. Weinberg, N.G. Sommer
Medical University of Graz, Austria
ETH Zuric, Switzerland

18h30-18h50 O53

Influence of ZX00 implants on the sheep bone ultrastructure
Kamila Iskhakova, D.C.F. Wieland, H. Ćwieka, T Albaraghtheh, B. Zeller-Plumhoff, R. Willumeit-Römer
Helmholtz-Zentrum Hereon, Germany

18h50-19h00 Conclusive Remarks
20h00-20h30 Cocktail at the Swimming Pool
20h30-midnight BBQ Farewell Party & Swimming Pool Party

Posters and SOPs

SOP and poster #	Title
Metals	
P1	**Microstructure and mechanical stability of biodegradable low-alloyed zinc for biomedical applications** Magdalena Wróbel, A Jarzębska, Ł Maj, Ł Rogal, P. Petrzak, M. Kulczyk, M. Bieda *Institute of Metallurgy and Materials Science of Polish Academy of Sciences, Poland*
P2	**Influence of alloying and plastic deformation on microstructure and mechanical properties of biodegradable low-alloyed zinc fo** Magdalena Bieda, A. Jarzębska, M. Wróbel, Ł. Maj, Ł. Rogal, J. Skiba *Institute of Metallurgy and Materials Science of Polish Academy of Sciences, Poland*
P3	**Process development for additive manufacture of zinc-based biomedical substitutes** Esmat Sheydaeian, A. Marquardt, L. Stepien, E. Lopez, F. Brückner, C. Leyens *Fraunhofer Institute for Material and Beam Technology (IWS), Germany*
P4	**Effect of magnetic field on degradation of ferrous alloys in modified Hanks' solution at 37ºC** Irene Limón, M. Multigner, M. Lieblich, C. Paternoster, D. Mantovani, J. Rams, B. Torres *Universidad Rey Juan Carlos,Spain*
P5	**Optimization of attrition milling and Spark Plasma Sintering consolidation of Fe5Mg and its degradation behaviour** Rafael G. Estrada, M. Multigner, S. C. Cifuentes, B. Torres, J. Rams, M. Lieblich *CENIM-CSIC, Spain*
P6	**The study of surface modifications generated by plasma immersion ion implantation on zinc alloys for biomedical applications** Souhila Ould Mohamed ,*C. Paternoster , D. Mantovani* *Laval University, Canada*

9.50-9.55	SOP1	**Effect of processing conditions on mechanical and in vitro degradation behavior of magnesium WE43 alloy wires** Wahaaj Ali, L. Tillmann, T. Mayer, A. Kopp, C. González,J. Llorca *IMDEA Materials, Spain*
18.00-18.05	P7/SOP2	**Binder Jetting additive manufacturing of the bioresorbable WE43 alloy: Challenges encountered in post-process sintering** Agnieszka Chmielewska, T. Avey, D. Cho, A. Luo, D. Dean *The Ohio State University, United States*
	SOP 3	**Study on mechanical properties, degradation properties and biocompatibility of Zn-RE binary alloys** S. Du, D.Xia, Yufeng Zheng, X.Xu *Peking University, China*

Corrosion

	P8	**PMMA-coating of biodegradable pure Zinc, pure Magnesium and their alloys through grafting-from technique** Nicolas Lallemand, F. Mouillard, Alia A. Diaa, N. El-Mahallawy, P. Masson, H. Palkowski, A. Carradò *Université de Strasbourg,France*
	P9	**Comprehensive study of degradation behaviour of zinc alloys subjected to hybrid plastic deformation** Anna Jarzębska, H. Helmholz, M. Wróbel, M. Bugajska, A. Bigos, S. Przybysz, R. Willumeit-Römer, M. Bieda *Polish Academy of Sciences, Poland*
	P10	**Characterisation and assessment of corrosion rate of TiO2 coated WE43 produced by atomic layer deposition** *Clara Grace Hynes, Z. Ghaferi, S. Malinov, A. Flanagan, F. Buchanan* Queen's University Belfast, Ireland
	P11/SOP4	**Effect of Zn/Ca Ratio on Corrosion and Mechanical Properties of Mg-Zn-Ca-Mn Biodegradable Alloys** Thomas Avey, D. H. Cho, D. Dean, A. A. Luo *The Ohio State Universit, United States*

In Vivo

	P12/SOP5	**In vitro and in vivo corrosion behavior and biocompatibility of biodegradable HA coated ZK60 alloy** L. V. Hai, D.T. H. Hanh, L.e Hanh, V. N. Dinh, Nguyen Viet Nam *Institute of Traumatology and Orthopaedics - Military Central Hospital, Vietnam*