

# Conference at a Glance

Time	Wednesday, May 17 <sup>th</sup>	Thursday, May 18 <sup>th</sup>				
8.00 h	<b>Pre-conference workshop: Young Scientist Session</b>	Registration				
8.15 h		<b>Session III: Biomaterials</b> Keynote Speaker: Dr. J. Möller				
8.30 h			O. Sterner			
8.45 h				V.A. Stadelmann		
9.00 h		A.G. Guex				
9.15 h			Coffee, Poster Session II			
9.30 h		D. Petta				
9.45 h			M. D'Este			
10.00 h		Registration & Poster installation	General assembly of the SSB + RM			
10.15 h			Poster Session III and standing lunch			
10.30 h	Welcome from SSB + RM / Empa					
10.45 h				<b>Session I: Antimicrobial materials: from development to testing</b> Keynote Speakers: Prof. H.J. Busscher		
11.00 h					<b>Session IV: open topics</b>	
11.15 h						E. Cavalli
11.30 h						F.S. Passini
11.45 h		Q. Vallmajo-Martin				
12.00 h	B. Le Gars Santoni					
12.15 h	Student Research Award					
12.30 h	Rapid fire posters and industry presentations	Keynote Speaker: Dr. M. Morgenstern				
12.45 h			Presentation of Oral and Poster Awards Concluding Remarks (Prof. Alex Dommann, Empa)			
13.00 h	Coffee, Poster Session I	End of the meeting				
13.15 h	<b>Session II: Clinical needs and industrial suggestions for antimicrobial materials</b> Keynote Speaker: Dr. C. Acikgoz	K. Thompson				
13.30 h			F. Rölli			
13.45 h			J. Puetzler			
14.00 h			M. Gontsarik			
14.15 h			Prof. G. Szekely			
14.30 h			Dr. R. Luginbühl			
14.45 h			Welcome drink & Conference dinner at Restaurant Lagerhaus			
15:05 h						
15.15 h						
15.30 h						
15.45 h						
16.00 h						
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17.30 h						
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18.00 h						
18.10 h						
19.30 h						

# Committees

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## 2017 Scientific Committee

- Dr Qun Ren, Laboratory for Biointerfaces, Empa, St.Gallen
- Prof. Dr Andreas Zumbühl, Department of Chemistry, University of Fribourg
- Dr Janine Conde, Dentsply Sirona, Yverdon les Bains
- Dr Björn Olbricht, Matthys AG, Bettlach

## 2017 Organizing Committee

- Dr Qun Ren, Laboratory for Biointerfaces, Empa, St. Gallen
- Dr Katharina Maniura, Laboratory for Biointerfaces, Empa, St. Gallen
- Dr Matthias Buhmann, Laboratory for Biointerfaces, Empa, St. Gallen
- Hervé Straub, Laboratory for Biointerfaces, Empa, St. Gallen
- Prof. Dr Marcy Zenobi-Wong, Cartilage Engineering and Regeneration Laboratory, ETH Zürich

## Web

- Marc Petitmermet, SSB+RM Webmaster

## Supporting team

- Dr Claudia Fessele, Laboratory for Biointerfaces, Empa, St.Gallen
- Ms Anja Pauling, Empa Academy
- Ms Claudia Marra, Empa Academy

# Information

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Conference site: [www.ssbrm.ch/SSBRM2017](http://www.ssbrm.ch/SSBRM2017)

Dates: May 17-18, 2017

Place: Empa, St. Gallen

Wifi: eduroam or guests (empa14, material)

Conference dinner: <http://www.restaurantlagerhaus.ch>

# Meeting Program

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**Wednesday, May 17th, 2017**

11:30-13:00 *Registration, Poster Installation*

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**13:00-13:15 Welcome from SSB+RM**

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**13:15-15:15 Session I: Antimicrobial materials: from development to testing**

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13:15-14:00 **Keynote Speaker: Prof. Henk Busscher**

Advances in antimicrobial biomaterials

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14:00-14:15 **O1:** M.T. Buhmann, (D. Abt, O. Nolte, A. Neels, B. Gutt, Q. Ren)  
Antifouling materials: analysis of the *in vivo* setting for improved, predictive *in vitro* biofilm models

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14:15-14:30 **O2:** S.L. Abram, (N. Hérault, K.M. Fromm)  
Ag nanoencapsulation for antimicrobial coatings

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14:30-14:45 **O3:** M. Creus  
Antimicrobial action of silver nanoparticles explored by laboratory selection of bacterial persistence

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**14:45-15:20 Rapid Fire Posters and Industry Presentations**

**Ind1:** P. Gruner (Meadicoat AG), An inorganic antimicrobial surface modification for orthopaedic implants

**Ind2:** N. Döbelin (RMS Foundation)

**P1:** E. Mulky, Functionalization of poly(lactic acid) surfaces with Ca-complexing groups for bone cement applications

**P2:** O. Guillaume, Hybrid polymeric structure for drug delivery purpose adaptable to photo-crosslinkable resin

**P3:** A. Mertgen, Enhancing endothelialisation of electrospun membranes via biofunctionalization for a bioinspired blood material interface

**P4:** P. Behrendt, Tyramine-modified hyaluronan hydrogel for human chondrocyte encapsulation: cell viability, rheological and bioadhesive properties

**P5:** M. Petrović, Fungicidal PMMA-undecylenic acid composites

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15:20-16:15 *Coffee, Poster Session*

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**16:15-18:30 Session II: Clinical needs and industrial suggestions for antimicrobial materials**

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16:15-17:00 **Keynote Speaker: Dr. Canet Acikgoz**, Oerlikon Surface Solutions AG, Liechtenstein  
Anti-microbial PVD coatings

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17:00-17:15 **O4:** K. Thompson, (S. Petkov, S. Zeiter, C.M. Sprecher, A. Baumann, R.G. Richards, T.F. Moriarty, H. Eijer)  
Gentamicin loading of calcium phosphate-coated implants prevents experimental *Staphylococcus aureus* device-associated infection *in vivo*

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17:15-17:30	<b>O5:</b> F. Rölli, (S. Kötzsch, F. Hammes) Growth condition targeted approach for biofilm prevention
17:30-17:45	<b>O6:</b> J. Puetzler, (S. Zeiter, A. Vallejo, D. Gehweiler, R.G. Richards, T.F. Moriarty) Influence of early versus delayed antibiotic intervention on treatment of <i>Staphylococcus aureus</i> fracture-related infection in rabbits
17:45-18:00	<b>O7:</b> M. Gontsarik, (M.T. Buhmann, A. Yaghmur, Q. Ren, K. Maniura-Weber, S. Salentinig) Nanocarriers for antimicrobial peptides to fight bacteria and superbugs
18:00-18:10	<b>CTI expert: Prof. Gabor Szekely</b> Medtech innovation: from invention to market
18:10-18:20	<b>Chair of COST Action TD1305: Dr. Reto Luginbühl</b> Improved protection of medical devices against infection (IPROMEDAI)
19:30	<i>Welcome drink &amp; Conference dinner at Restaurant Lagerhaus</i>

## Thursday, May 18th, 2017

08:00-08:30	<i>Registration of the Participants</i>
<b>08:30-11:00</b>	<b>Session III: Biomaterials</b>
08:30-09:15	<b>Keynote Speaker: Dr. Jens Möller</b> Mechanoregulation of bacterial phagocytosis and surface colonization
09:15-09:30	<b>O8:</b> O. Sterner, (C. Mathis, S. Goehl, P. Kugelmeier, S. Zürcher, S.G. Tosatti) Stem cells react on form and surface – Biological principles demand new platforms for regenerative medicine
09:30-09:45	<b>O9:</b> V.A. Stadelmann, (K. Camenisch, K. Thompson, U. Eberli, S. Zeiter, T.F. Moriarty) A standardized rat model for monitoring bone changes in implant-related osteomyelitis with fully automated <i>in vivo</i> microCT image processing workflow
09:45-10:00	<b>O10:</b> A.G. Guex, (D.J. Poxson, G. Fortunato, D.T. Simon, K. Maniura-Weber, R.M. Rossi, M. Rottmar) Electrospun scaffolds with organic electronic ion pumps – Novel wound dressings to target skin fibrosis
10:00-10:30	<i>Coffee, Poster Session</i>
10:30-10:45	<b>O11:</b> D. Petta, (D.W. Grijpma, A. Armiento, D. Eglin, M. D'Este) Tyramine modified hyaluronic acid ink for 3D-printed cellularized construct
10:45-11:00	<b>O12:</b> M. D'Este, (A. Plumecoq, M. Alini, G Demazeau) High hydrostatic pressure for decontamination of soft biomaterials
<b>11:00-11:45</b>	<b>General Assembly of the SSB+RM</b>
11:45-13:15	<i>Poster Session and Standing Lunch</i>
<b>13:15-15:00</b>	<b>Session IV: Open Topics in Biomaterials</b>

13:15-13:30	<b>O13:</b> E. Cavalli, (N. Broguiere, L.A. Applegate, M. Zenobi-Wong) An explant model to study the adhesion and chondrogenic potential of injectable scaffolds for cartilage repair
13:30-13:45	<b>O14:</b> F.S. Passini, (K.D. Ferrari, A.S. Saab, S. Caprara, B. Weber, J.G. Snedeker) Calcium signaling in tendons: an early response to mechanical loading
13:45-14:00	<b>O15:</b> Q. Vallmajo-Martin, (A. Negro, M. Lutolf, M. Ehrbar) Bone marrow mesenchymal stem cells actively participate in the recruitment of murine hematopoietic stem cells in bioengineered minimalistic bone marrows
14:00-14:15	<b>O16:</b> B. Le Gars Santoni, (C. Stähli, N. Döbelin, M. Böhner) Non-congruent dissolution of Copper-doped beta-Tricalcium Phosphate
14:15-14:30	<b>Student Research Award</b>
14:30-15:15	<b>Keynote Speaker: Dr. Mario Morgenstern</b> Biomaterials in prophylaxis and treatment of orthopaedic device-related infections
<b>15:15-15:30</b>	<b>Concluding Remarks and Presentation Awards: Research Award, Best Poster and Best Oral Presentation</b>
15:30	<i>End of Meeting</i>

## Posters

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Poster Number	Title	Authors
P1	Functionalization of poly lactic acid surfaces with Ca-complexing groups for bone cement applications	E. Mulky, D. Hegemann, G. Fortunato, J. Sague, K. Maniura, M. Frenz, R. Luginbuehl
P2	Hybrid polymeric structure for drug delivery purpose adaptable to photo-crosslinkable resin	O. Guillaume, X. Zhang, R.G. Richards, T. Peijs, D. Eglin and J. Gautrot
P3	Enhancing endothelialisation of electrospun membranes via biofunctionalization for a bioinspired blood material interface	A. Mertgen, A.G. Guex, G. Faccio, G. Fortunato, R.M. Rossi, M. Rottmar, K. Maniura-Weber
P4	Tyramine-modified hyaluronan hydrogel for human chondrocyte encapsulation: cell viability, rheological and bioadhesive properties	P. Behrendt, S. Lippross, R.G. Richards, M. Alini, D Eglin, AR Armiento
P5	Fungicidal PMMA-undecylenic acid composites	M. Petrović, D. Bonvin, H. Hofmann, M. Mionić Ebersold
P6	Matrix topography regulates tendon-derived cell response to paracrine macrophage signalling	A.D. Schoenenberger, U. Silvan, J. Foolen, J.G. Snedeker
P7	Development of conductive collagen via magnetically oriented nanoparticles	T. Serra, V. Bonfante, D. Manno, A. Serra, L. Salvatore, A. Buccolieri, G. Giancane
P8	Antibacterial and cell-adhesive effects of bio-inspired nanostructured materials	K. Mukaddam, J. Spicher, M. Astasov-Frauenhoffer, I. Hauser-Gerspach, J. Köser, T. Glatzel, M. Kisiel, D. Mathys, R. Steiner, E. Meyer, L. Marot, S. Kühl
P9	Protein adsorption, blood interaction, and cell studies on nanoparticle gradients	R. Huber, M. Rottmar, E. Müller, K. Maniura-Weber, N.D. Spencer
P10	Antimicrobial efficacy evaluation of copper coated glass items for use at ambient conditions – lessons learned	J. Koeser, P. Meier, A. Romanyuk, J. Bercher, U. Pielas
P11	Antibacterial effect of copper functionalized titanium implants on oral bacteria	M. Astasov-Frauenhoffer; A. Zimmermann; T. Waltimo; I. Hauser-Gerspach; C. Jung
P12	Poly( $\epsilon$ -caprolactone) particulate carrier systems for antibiotic drug delivery applications	S. G. Rotman, D. W. Grijpma, T. F. Moriarty, R. G. Richards, D. Eglin, O. Guillaume
P13	The interplay of surface chemistry and (nano-)topography defines the osseointegrative potential of Roxolid dental implant surfaces	E. Müller, M. Rottmar, S. Guimond, U. Tobler, M. Stephan, S. Berner, K. Maniura

<b>P14</b>	Towards an injectable, growth factor-loaded hydrogel for cartilage repair	C. Levinson, E. Cavalli, N. Broguiere, L.A. Applegate, M. Zenobi-Wong
<b>P15</b>	Treatment of chronic implant-related infection in sheep in a single stage revision by local gentamicin delivery with a thermoresponsive hyaluronan hydrogel	M. D'Este, W. Boot, F. Moriarty, T. Schmid, S. Zeiter, R.G. Richards, D. Eglin
<b>P16</b>	Identifying cells with Raman spectroscopy to develop a quality control for tissue engineered cartilage	L. Power, M. A. Asnaghi, D. Wendt, and I. Martin
<b>P17</b>	Increasing porosity correlates with decreasing T-scores in the distal tibia of postmenopausal women	C.M. Sprecher, F. Schmidutz, S. Milz, D. Schiuma, M. Windolf, R.G. Richards, A.W. Popp
<b>P18</b>	Bony integration of porous tantalum despite ongoing infection: histologic workup of an explanted shoulder prosthesis	P. Wahl, C.M. Sprecher, C. Brüning, C. Meier, E. Gautier, T.F. Moriarty
<b>P19</b>	Antibacterially active parylene coatings	D. Hegemann, M. Amberg, M. Vandenbossche, Q. Ren, H. Damsir, F. Bourgeois
<b>P20</b>	Porous, ultralight 3D tubular scaffolds from short electrospun nanofibers	M. Merk, C. Adlhart
<b>P21</b>	Beneficial oral biofilms as an effective tool to maintain a balanced oral microbial community	B. Gutt, Q. Ren, I. Hauser-Gerspach, P. Kardas, S. Stübinger, M. Astasov-Frauenhoffer, T. Waltimo
<b>P22</b>	Stable drinking water until the point of use – towards a probiotic approach for polymeric materials in building plumbing installations	L. Neu, F. Hammes
<b>P23</b>	Characterization of an engineered collagen scaffold for bladder augmentation	R.M. Martell, K. Bircher, E. Vardar, H.M. Larsson, E.M. Balet, G. Vythilingam, E. Mazza, P. Frey
<b>P24</b>	The interplay of extracellular matrix glycation and inflammation in diabetic tendinopathy	A. A. Hussien, C. N. Holenstein, J. G. Snedeker
<b>P25</b>	Silver ion doped TiN coatings with antibacterial and cytocompatible properties	S. Guimond-Lischer, C. Acikgoz, M.H. Lindic, F. Zuber, B. Gutt, K. Grieder, Q. Ren, M. Rottmar, K. Maniura-Weber
<b>P26</b>	Boc( $\beta$ ala) <sub>2</sub> N <sub>2</sub> H <sub>3</sub> and its interaction with silver	A. Holzheu, A. Crochet, K. M. Fromm
<b>P27</b>	Advances in lifetime predictions of DLC coated articulating implants	A. Pardo, E. Ilic, P. Schmutz, T. Suter, K. Thorwarth, R. Hauert

<b>P28</b>	Wound bandages and gels functionalized with peptide-displaying nanocomplexes for healing promotion	V. Patrulea, L.A. Applegate, G. Borchard, O. Jordan
<b>P29</b>	The anabolic and anti-inflammatory effects of biological small molecules for treatment of osteoarthritis	R. Ziadlou, S. Grad, M. Stoddart, X. Wang, Q. Ling, A. Barbero, I Martin, M. Alini
<b>P30</b>	Easy-to-clean coating based on vapour-deposited trialkoxyfluorosilane	A. Wäckerlin, E. Kūlah, M. Amberg, T. Niessen, P. Rupper, D. Hegemann, Y. Romanyuk, A. Tiwari
<b>P31</b>	FISH-based detection of bacteria in orthopedic implant-related infections	W. Boot, D. Gawlitta, E. van Genderen, J. G. Kusters, M. B. Ekkelenkamp, A. C. Fluit, J. P.M. Vlooswijk, W. J.A. Dhert, H. C. Vogely
<b>P32</b>	A microfluidics-based approach to investigate the factors influencing the initial phase of bacterial adhesion on surfaces	H. Straub, H.J. Zhang, R.M. Rossi, K. Maniura-Weber, Q. Ren
<b>P33</b>	PMMA-oleic acid composites as <i>Candida</i> biofilm repellent	M Petrović, H Hofmann, M Mionić Ebersold
<b>PLM01</b>	Increased antimicrobial activity of silver-ruthenium coatings	A. Heiss
<b>PLM02</b>	An <i>in vitro</i> model for evaluating novel skin wound healing therapies	C. Griffoni, B. Sentürk, M. Rottmar, K. Maniura-Weber
<b>PLM03</b>	Engineering biomolecules for advanced nanocellulose based antimicrobial coatings	R Weishaupt, L Heuberger, G Faccio, G Siqueira, T Zimmermann, K Maniura-Weber

