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	5c. PROGRAM ELEMENT NUMBER 611104

6. AUTHORS	5d. PROJECT NUMBER
	5e. TASK NUMBER
	5f. WORK UNIT NUMBER

7. PERFORMING ORGANIZATION NAMES AND ADDRESSES Gordon Research Conferences, Inc. 512 Liberty Lane West Kingston, RI 02892 -1502	8. PERFORMING ORGANIZATION REPORT NUMBER
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9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS (ES) U.S. Army Research Office P.O. Box 12211 Research Triangle Park, NC 27709-2211	10. SPONSOR/MONITOR'S ACRONYM(S) ARO
	11. SPONSOR/MONITOR'S REPORT NUMBER(S) 73163-LS-CF.1

12. DISTRIBUTION AVAILABILITY STATEMENT Approved for public release; distribution is unlimited.
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13. SUPPLEMENTARY NOTES The views, opinions and/or findings contained in this report are those of the author(s) and should not be construed as an official Department of the Army position, policy or decision, unless so designated by other documentation.

14. ABSTRACT

15. SUBJECT TERMS

16. SECURITY CLASSIFICATION OF:	17. LIMITATION OF ABSTRACT	15. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT	b. ABSTRACT	c. THIS PAGE	Derk Joester
UU	UU	UU	19b. TELEPHONE NUMBER 773-576-5852

RPPR Final Report

as of 19-Feb-2019

Agency Code:

Proposal Number: 73163LSCF

Agreement Number: W911NF-18-1-0123

INVESTIGATOR(S):

Name: Derk Joester
Email: d-joester@northwestern.edu
Phone Number: 7735765852
Principal: Y

Organization: **Gordon Research Conferences, Inc.**

Address: 512 Liberty Lane, West Kingston, RI 028921502

Country: USA

DUNS Number: 075712877

EIN: 050300482

Report Date: 31-Aug-2018

Date Received: 12-Sep-2018

Final Report for Period Beginning 01-May-2018 and Ending 31-Aug-2018

Title: 2018 Biomineralization Gordon Research Conference & Gordon Research Seminar

Begin Performance Period: 01-May-2018

End Performance Period: 31-Aug-2018

Report Term: 0-Other

Submitted By: Nancy Ryan Gray

Email: grants@grc.org

Phone: (401) 360-1505

Distribution Statement: 1-Approved for public release; distribution is unlimited.

STEM Degrees:

STEM Participants:

Major Goals: Biomineralization means many different things to different people. Biomineralization is the outcome of a genetic program that results in an anatomical feature, the product or target of pathological processes that threaten health and well-being, evidence of evolutionary mechanisms, the consequence of a complex choreography of cellular events, an effect of reciprocal action between environment and living systems, the result of phase transformations and self-assembly, or a quintessential example of the role of surfaces, buried interfaces, and interphases. And that's merely the beginning. Beyond the fabrication of hierarchical structures with emergent functional properties, biomineralization is a source of inspiration for innovating materials, designing new structures and processes, and developing biomedical interventions.

The Gordon Research Conference (GRC) on Biomineralization aimed to tie this diverse field together. Held for the third time in conjunction with the Gordon Research Seminar (GRS), the GRC welcomed researchers from the physical, life, health, and engineering sciences to participate as they covered the full breadth of organismal and mineral systems. This meeting focused on the investigation of fundamental biotic and abiotic structures and mechanisms, and the applications of knowledge gleaned from the process. Finally, we discussed ways in which combining experimental, theoretical, and computational approaches is beneficial to studying these highly complex systems.

Vibrant and stimulating poster sessions that complement the invited lectures contributed to the success of both the GRS and GRC meetings. Often continuing deep into the night, these sessions enabled participants, and especially young researchers, to present their latest results and exchange ideas in a less formal setting. All conferees were strongly encouraged to submit and present posters. Approximately 8 poster contributions were selected for short oral presentations.

Accomplishments: Report uploaded

Training Opportunities: Speakers, discussion leaders, poster presenters and attendees simultaneously contributed to and benefited from the collective skills and experience shared throughout the conference.

Results Dissemination: The final conference program has been posted on the GRC website.

Honors and Awards: Nothing to Report

RPPR Final Report
as of 19-Feb-2019

Protocol Activity Status:

Technology Transfer: Nothing to Report



GORDON RESEARCH CONFERENCES

FINAL PROGRESS REPORT

Army Research Office
Biomineralization GRC/GRS

Grant Number W911NF-18-1-0123

July 28-August 3, 2018

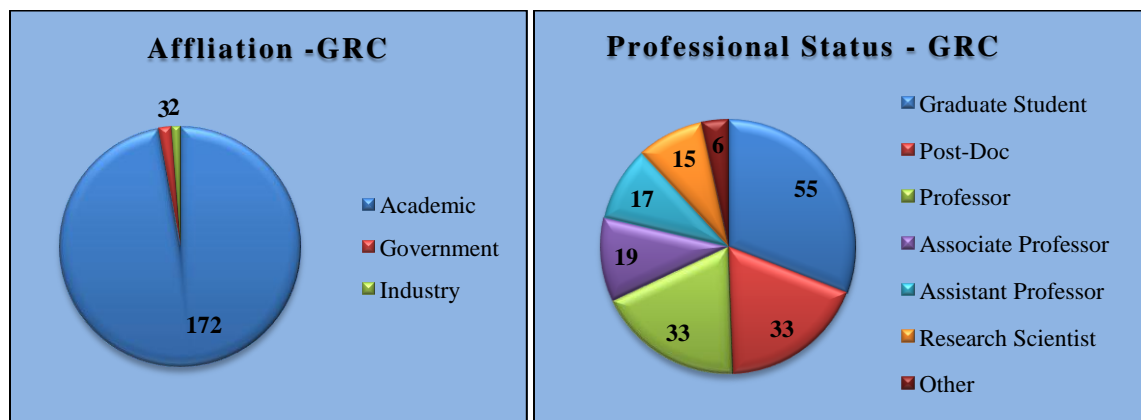
Operational Summary

The Gordon Research Conference (GRC) and Gordon Research Seminar (GRS) on Electrochemistry were held at the Colby Sawyer College in New London, New Hampshire from July 28-August 3, 2018. The meeting covered a variety of scientific topics and the content presented was highly rated by participants.



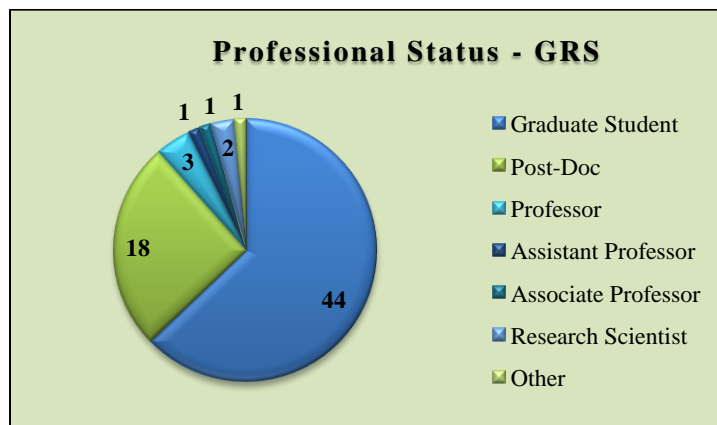
Conference Participants

The Conference was well-attended with 178 participants. Scientists from academia represented 97% of the participants while attendees from government accounted for 2% and those from industry totaled 1%. The meeting also attracted a strong mix of young investigators and senior scientists. Students and post-docs accounted for 50% of all attendees. Approximately 46% of the participants at the 2018 meeting were women.



Seminar Participants

The Conference was well-attended with 70 participants. Scientists from academia represented 100% of the participants. Students and post docs combined accounted for 89% of all attendees. Approximately 54% of the participants at the 2018 seminar were women.



Conference Program

Biom mineralization means many different things to different people. Biom mineralization is the outcome of a genetic program that results in an anatomical feature, the product or target of pathological processes that threaten health and well-being, evidence of evolutionary mechanisms, the consequence of a complex choreography of cellular events, an effect of reciprocal action between environment and living systems, the result of phase transformations and self-assembly, or a quintessential example of the role of surfaces, buried interfaces, and interphases. And that's merely the beginning. Beyond the fabrication of hierarchical structures with emergent functional properties, biom mineralization is a source of inspiration for innovating materials, designing new structures and processes, and developing biomedical interventions.

The Gordon Research Conference (GRC) on Biom mineralization aimed to tie this diverse field together. Held for the third time in conjunction with the Gordon Research Seminar (GRS), the GRC welcomed researchers from the physical, life, health, and engineering sciences to participate as they covered the full breadth of organismal and mineral systems. This meeting focused on the investigation of fundamental biotic and abiotic structures and mechanisms, and the applications of knowledge gleaned from the process. Finally, we discussed ways in which combining experimental, theoretical, and computational approaches is beneficial to studying these highly complex systems.

Vibrant and stimulating poster sessions that complement the invited lectures contributed to the success of both the GRS and GRC meetings. Often continuing deep into the night, these sessions enabled participants, and especially young researchers, to present their latest results and exchange ideas in a less formal setting. All conferees were strongly encouraged to submit and present posters. Approximately 8 poster contributions were selected for short oral presentations.

Conference Budget

Funding provided by the Army Research Office supported partial registration and/or travel for 7 postdocs, 14 graduate students, 14 professors, 10 associate professors, 11 assistant professors, 1 other and 3 research scientists at the GRC.

Conference Feedback

Participants had an opportunity to provide feedback at the end of the Conference. The feedback collected from the meeting was extremely positive. Evaluations included numerous positive remarks regarding the diversity of expertise of the attendees, discussions at the poster sessions and the high quality of talks. Evaluations from the GRS included positive comments regarding the broad range of topics, poster sessions and the keynote session.

GRC would like to thank the Army Research Office for its continued support of the meetings. The contributions received have been critical to the success of the conferences and are having a measurable impact in advancing the frontiers of science worldwide.

Dr. Derk Joester, GRC Chair
Northwestern University

Dr. Janet Moradian-Oldak, GRC Vice Chair
University of Southern California

Dr. Karen Kahil, GRS Chair
Weizmann Institute of Science

Dr. Giulia Mirabello, GRS Co-Chair
Eindhoven University of Technology

Dr. Nancy Ryan Gray
President and Chief Executive Officer
Gordon Research Conferences

Biom mineralization
Gordon Research Conference
Fundamental Biotic and Abiotic Mechanisms of Biom mineralization
July 29 - August 3, 2018
Chair Derk Joester
Vice Chair Janet Moradian-Oldak

Conference Program

Sunday

2:00 pm - 9:00pm	Arrival and Check-in
6:00 pm - 7:00 pm	Dinner
7:30 pm - 7:40 pm	Introductory Comments by GRC Site Staff / Welcome from the GRC Chair
7:40 pm - 9:30 pm	The Mineral-Water Interface Discussion Leader: Hendrik Heinz (University of Colorado Boulder, USA)
7:40 pm - 7:45 pm	Opening Remarks
7:45 pm - 8:00 pm	Introduction by Discussion Leader
8:00 pm - 8:25 pm	Rosa M. Espinosa-Marzal (University of Illinois at Urbana-Champaign, USA) "A Surface-Science Approach to Biom mineralization"
8:25 pm - 8:45 pm	Discussion
8:45 pm - 9:10 pm	Takeshi Fukuma (Kanazawa University, Japan) "Visualizing Calcite Growth and Dissolution Processes by High-Speed FM-AFM"
9:10 pm - 9:30 pm	Discussion

Monday

7:30 am - 8:30 am	Breakfast
9:00 am - 12:30 pm	The Role of Vesicular Transport and Processing Discussion Leader: Mike Hubbard (University of Melbourne, Australia)
9:00 am - 9:15 am	Introduction by Discussion Leader
9:15 am - 9:40 am	Jonathan Erez (Hebrew University of Jerusalem, Israel) "Biom mineralization of Marine Calcifiers: Lessons from Physiology and Geochemistry"
9:40 am - 10:00 am	Discussion
10:00 am - 10:25 am	Lia Addadi (Weizmann Institute of Science, Israel) "Tracking Pathways of Ion Transport and Concentration Toward Mineral Deposition"
10:25 am - 10:45 am	Discussion
10:45 am - 11:15 am	Coffee Break
11:15 am - 11:25 am	Selected from Poster Abstracts: Anne Jantschke (TU Dresden, Germany) "Nature and Function of Crystalline Inclusions in Calcifying Dinoflagellates and Their Relevance in Biom mineralization"
11:25 am - 11:30 am	Discussion
11:30 am - 11:40 am	Selected from Poster Abstracts: Maayan Neder (University of Haifa, Israel) "Mineral Formation in the Primary Polyps of Pocilloporoidea Corals"
11:40 am - 11:45 am	Discussion
11:45 am - 12:10 pm	Catherine Shanahan (King's College London, United Kingdom) "Microvesicles and Mineralization: Correlation or Causation"
12:10 pm - 12:30 pm	Discussion
12:30 pm - 1:30 pm	Lunch
1:30 pm - 4:00 pm	Free Time
3:00 pm - 4:00 pm	Power Hour <i>The GRC Power Hour is an optional informal gathering open to all meeting participants. It is designed to help address the challenges women face in science and support the professional growth of women in our communities by providing an open forum for discussion and mentoring.</i> Organizers: Noah Metoki (Northwestern University, USA) and Utthara Rameshbabu (Northwestern University, USA)

4:00 pm - 6:00 pm	Poster Session
6:00 pm - 7:00 pm	Dinner
7:30 pm - 9:30 pm	Of Mechanisms and Proxies Discussion Leader: Jennifer Fehrenbacher (Oregon State University, USA)
7:30 pm - 7:45 pm	Introduction by Discussion Leader
7:45 pm - 8:10 pm	Kristen Fichthorn (Pennsylvania State University, USA) "Multi-Scale Modelling of Crystal Growth from First Principles: Crystallized"
8:10 pm - 8:30 pm	Discussion
8:30 pm - 8:40 pm	Selected from Poster Abstracts: Robert Eagle (University of California, Los Angeles, USA) "Combining Geochemical Tracers and Cellular Biological Approaches to Study the Environment of Marine Calcifying Organisms"
8:40 pm - 8:45 pm	Discussion
8:45 pm - 9:10 pm	Alberto Perez-Huerta (The University of Alabama, USA) "Geochemical Proxies in the Context of Biomineralization: A Must!"
9:10 pm - 9:30 pm	Discussion
Tuesday	
7:30 am - 8:30 am	Breakfast
9:00 am - 12:30 pm	Mechanisms of Biological Crystal Growth Control Discussion Leader: Felicitas Bidlack (The Forsyth Institute, USA)
9:00 am - 9:15 am	Introduction by Discussion Leader
9:15 am - 9:40 am	Fabio Nudelman (University of Edinburgh, United Kingdom) "Structure and Functionalisation of the Coccolith Baseplate"
9:40 am - 10:00 am	Discussion
10:00 am - 10:30 am	Group Photo / Coffee Break
10:30 am - 10:55 am	Yael Politi (Max Planck Institute of Colloids and Interfaces, Germany) "Co-Organization of Chitin and Proteins in Arthropod Cuticle"
10:55 am - 11:15 am	Discussion
11:15 am - 11:25 am	Selected from Poster Abstracts: Jinhui Tao (Pacific Northwest National Laboratory, USA) "Control of Calcium Phosphate Nucleation and Transformation Through Co-Assembly of Enamelin and Amelogenin"
11:25 am - 11:30 am	Discussion
11:30 am - 11:40 am	Selected from Poster Abstracts: Ling Li (Virginia Polytechnic Institute and State University, USA) "Morphology and Formation Mechanisms of the Biomineralized Photonic Structure in the Blue-Rayed Limpet"
11:40 am - 11:45 am	Discussion
11:45 am - 12:10 pm	Igor Zlotnikov (B CUBE - Center for Molecular Bioengineering, TU Dresden, Germany) "A Physical Model for Molluscan Shell Ultrastructural Morphogenesis"
12:10 pm - 12:30 pm	Discussion
12:30 pm - 1:30 pm	Lunch
1:30 pm - 4:00 pm	Free Time
4:00 pm - 6:00 pm	Poster Session
6:00 pm - 7:00 pm	Dinner
7:30 pm - 9:30 pm	Fundamentals of Phase Transformations Discussion Leader: Stephan Wolf (Friedrich-Alexander-University Erlangen-Nürnberg, Germany)
7:30 pm - 7:45 pm	Introduction by Discussion Leader
7:45 pm - 8:10 pm	Lara Estroff (Cornell University, USA) "Bio-Inspired Mineralization: Interfaces Between Polymers and Crystals"
8:10 pm - 8:30 pm	Discussion
8:30 pm - 8:40 pm	Selected from Poster Abstracts: Noah Metoki (Northwestern University, USA) "Quantifying ACC Crystallization Kinetics and Polymorph Selectivity"
8:40 pm - 8:45 pm	Discussion
8:45 pm - 9:10 pm	Jeffrey Rimer (University of Houston, USA)

	"Developing Preventative Therapies for Kidney Stone Disease: New Approaches to Inhibit Calcium Oxalate Crystallization"
9:10 pm - 9:30 pm	Discussion
Wednesday	
7:30 am - 8:30 am	Breakfast
9:00 am - 12:30 pm	From Genes to Biomineralized Tissues Discussion Leader: Smadar Ben Tabou De Leon (University of Haifa, Israel)
9:00 am - 9:15 am	Introduction by Discussion Leader
9:15 am - 9:40 am	Ophir Klein (University of California, San Francisco, USA) "Long in the Tooth: Making the Cells that Make the Mineral"
9:40 am - 10:00 am	Discussion
10:00 am - 10:25 am	Cynthia Bradham (Boston University, USA) "Patterning the Biomineral"
10:25 am - 10:45 am	Discussion
10:45 am - 11:15 am	Coffee Break
11:15 am - 11:25 am	Selected from Poster Abstracts: Stefan Görlich (B CUBE - Center for Molecular Bioengineering, TU Dresden, Germany) "The Role of the Silicanin-1, a Membrane Protein in the Diatom Silica Deposition Vesicle "
11:25 am - 11:30 am	Discussion
11:30 am - 11:40 am	Selected from Poster Abstracts: Grazyna Sroga (Rensselaer Polytechnic Institute, USA) "Phosphorylation and Glycation of Extracellular Bone Matrix Proteins and Their Contribution to Bone Fragility"
11:40 am - 11:45 am	Discussion
11:45 am - 12:10 pm	Yue Him Wong (Academia Sinica, Taiwan) "Molecular and Cellular Mechanism Involved in Barnacle Shell Formation"
12:10 pm - 12:30 pm	Discussion
12:30 pm - 1:30 pm	Lunch
1:30 pm - 4:00 pm	Free Time
4:00 pm - 6:00 pm	Poster Session
6:00 pm - 7:00 pm	Dinner
7:30 pm - 9:30 pm	Bio-Inspired Processes and Materials Discussion Leader: Ana Bedran-Russo (University of Illinois at Chicago, USA)
7:30 pm - 7:45 pm	Introduction by Discussion Leader
7:45 pm - 8:10 pm	Christine Keating (Pennsylvania State University, USA) "Bioinspired Mineralizing Microenvironments Generated by Liquid-Liquid Phase Coexistence in Aqueous Media"
8:10 pm - 8:30 pm	Discussion
8:30 pm - 8:40 pm	Selected from Poster Abstracts: Kaushik Mukherjee (Center for Craniofacial Molecular Biology, University of Southern California, USA) "A Peptide-Based Bioinspired Approach to Reconstructing Multi-Layered Aprismatic Enamel"
8:40 pm - 8:45 pm	Discussion
8:45 pm - 9:10 pm	Sarah Staniland (University of Sheffield, United Kingdom) "Understanding and Exploiting Magnetosome Biomineralization for the Biomimetic Synthesis of Next-Generation Magnetic Nanoparticles"
9:10 pm - 9:30 pm	Discussion
Thursday	
7:30 am - 8:30 am	Breakfast
8:30 am - 9:00 am	Business Meeting <i>Nominations for the Next Vice Chair; Fill in Conference Evaluation Forms; Discuss Future Site and Scheduling Preferences; Election of the Next Vice Chair</i>
9:00 am - 12:30 pm	Mineralization in Collagenous Matrices Discussion Leader: Eli Sone (University of Toronto, Canada)

9:00 am - 9:15 am	Introduction by Discussion Leader
9:15 am - 9:40 am	Franklin Tay (Augusta University, USA) "Effect of Collagen-Ligand Interaction on Intrafibrillar Mineralization"
9:40 am - 10:00 am	Discussion
10:00 am - 10:25 am	Nico Sommerdijk (Eindhoven University of Technology, The Netherlands) "Collagen Mineralization in Living and Non-Living <i>In Vitro</i> Systems"
10:25 am - 10:45 am	Discussion
10:45 am - 11:15 am	Coffee Break
11:15 am - 11:25 am	Selected from Poster Abstracts: Cayla Stifler (University of Wisconsin-Madison, USA) "X-Ray Linear Dichroism Reveals Mesoscale Order of Apatite Crystals in Parrotfish"
11:25 am - 11:30 am	Discussion
11:30 am - 11:40 am	Selected from Poster Abstracts: Changyu Shao (Zhejiang University, China) "Citrate Improves Collagen Mineralization via Interface Wetting"
11:40 am - 11:45 am	Discussion
11:45 am - 12:10 pm	Kathryn Grandfield (McMaster University, Canada) "Correlative Imaging for Bone and Bone-Implant Interfaces"
12:10 pm - 12:30 pm	Discussion
12:30 pm - 1:30 pm	Lunch
1:30 pm - 4:00 pm	Free Time
4:00 pm - 6:00 pm	Poster Session
6:00 pm - 7:00 pm	Dinner
7:30 pm - 9:30 pm	Keynote Session: On Growth and Form Discussion Leader: Derk Joester (Northwestern University, USA)
7:30 pm - 7:35 pm	Introduction by Discussion Leader
7:35 pm - 8:00 pm	Willem Noorduin (AMOLF, The Netherlands) "Bio-Inspired Assembly of Micro-Architectures"
8:00 pm - 8:20 pm	Discussion
8:20 pm - 8:25 pm	Introduction by Discussion Leader
8:25 pm - 9:10 pm	Jukka Jernvall (University of Helsinki, Finland) "Evolution of Tooth Shape: When Patterning Is Ready to Hand over the Control of Shape to Mineralization?"
9:10 pm - 9:25 pm	Discussion
9:25 pm - 9:30 pm	Closing Remarks
Friday	
7:30 am - 8:30 am	Breakfast
9:00 am	Departure

Contributors

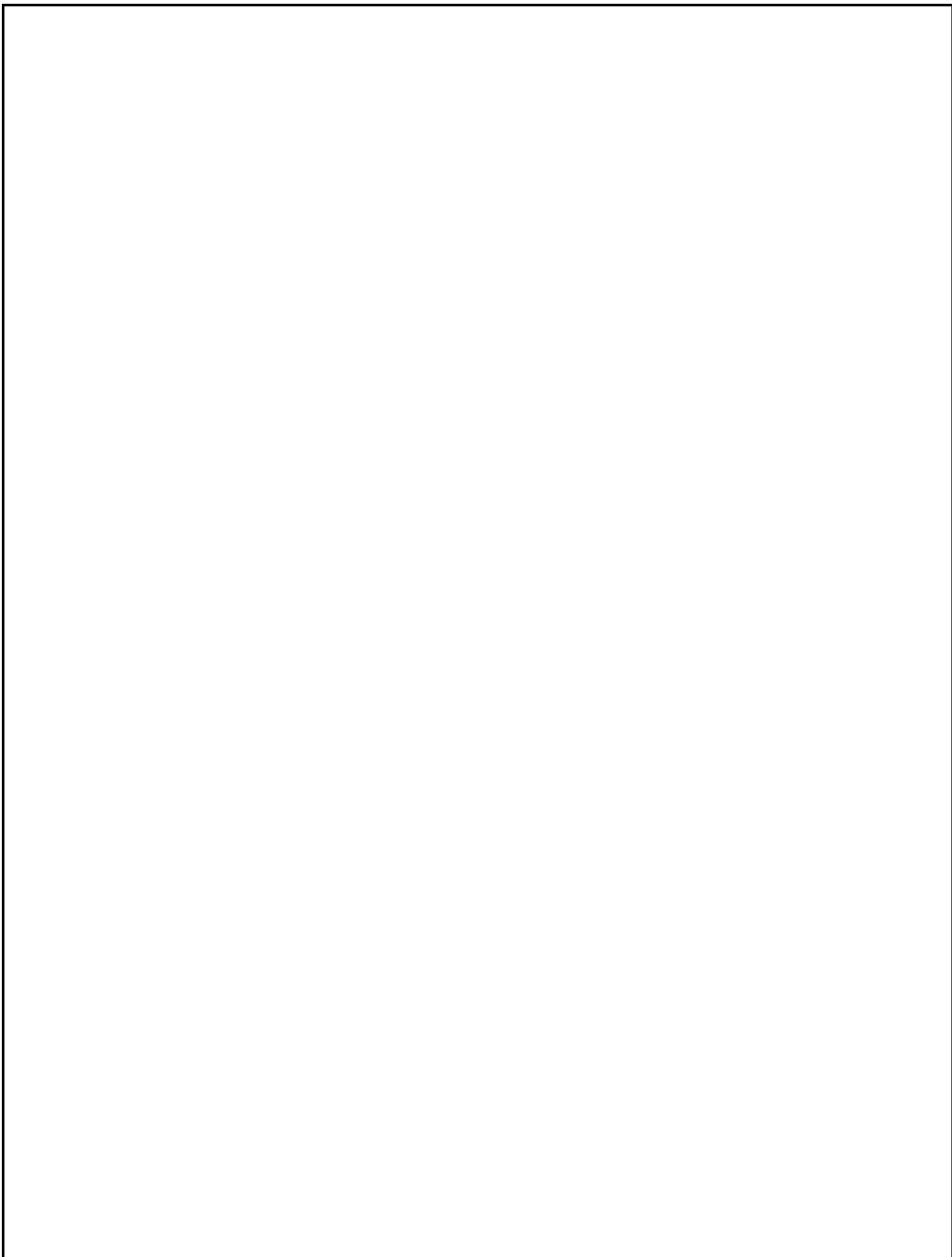


Gordon Research
Conferences
Frontiers of Science



Northwestern
University





Biom mineralization GRC Registration List

Addadi, Lia	Weizmann Institute of Science	Speaker
Akiva, Anat	Eindhoven University of Technology	Poster Presenter
Alamani, Bryan G	University of Houston	Poster Presenter
Alberic, Marie	Max Planck Institute of Colloids and Interfaces	Poster Presenter
Alvares, Keith	Northwestern University	Attendee
Anousakis-Vlachochristou, N	Biomedical Research Foundation of the Academy of Athens	Poster Presenter
Aram, Lior	Weizmann Institute of Science	Poster Presenter
Athanasiadou, Dimitra	McGill University	Poster Presenter
Bapat, Rucha A	University of Southern California	Poster Presenter
Bedran-Russo, Ana	University of Illinois at Chicago	Discussion Leader
Beliaev, Maksim A	B CUBE - Center for Molecular Bioengineering Technische Universitaet Dresden	Poster Presenter
Ben Tabou De Leon, S	University of Haifa	Discussion Leader
Berman, Amir	Ben-Gurion U.	Poster Presenter
Bertinetti, Luca	Max Planck Institute of Colloids and Interfaces	Poster Presenter
Bidlack, Felicitas B	The Forsyth Institute	Discussion Leader
Bradham, Cynthia A	Boston University	Speaker
Buss, Daniel J	McGill University	Poster Presenter
Capua Shenkar, Jenny R	Weizmann Institute of Science	Poster Presenter
Chan, Bin San	Clemson University	Poster Presenter
Chang, Eric	Pace University	Poster Presenter
Chen, Sang	California Institute of Technology	Poster Presenter
Choi, Ho-Suk	Chungnam National University	Poster Presenter
Choi, Yoo Seong	Chungnam National University	Poster Presenter
Choi, Siyoung	Cornell University	Poster Presenter
Cook, Philip K	ESRF	Poster Presenter
Couasnon, Thais C	Institut de Physique du Globe de Paris CNRS-UMR7154	Poster Presenter
Cusack, Maggie	University of Stirling	Poster Presenter
Dauphin, Yannicke	Museum National d'Histoire Naturelle	Poster Presenter
de Nooijer, Lennart J	Royal Netherlands Institute for Sea Research (NIOZ)	Poster Presenter
De Yoreo, Jim J	Pacific Northwest National Laboratory	Poster Presenter
Demmert, Benedikt	Macquarie University and Friedrich-Alexander University Erlangen-Nuremberg	Poster Presenter
Depalle, Baptiste	The Forsyth Institute	Poster Presenter
DeRocher, Karen A	Northwestern University	Poster Presenter
Deymier, Alix C	UConn Health	Poster Presenter
DiCorato, Alessandra	Northwestern University	Poster Presenter
Drake, Jeana L	University of California, Los Angeles	Poster Presenter
Duverger, Olivier	NIDCR/NIH	Attendee
Eagle, Robert	University of California, Los Angeles	Speaker
Elias, Jeremy	University of Florida	Poster Presenter
Elsharkawy, Sherif	Queen Mary University of London	Poster Presenter
Eren, Deniz	Eindhoven University of Technology	Poster Presenter

Erez, Jonathan	Hebrew University of Jerusalem	Speaker
Espinosa-Marzal, Rosa	University of Illinois at Urbana-Champaign	Speaker
Estroff, Lara A	Cornell University	Speaker
Evans, John S	New York University	Poster Presenter
Farzadi, Arghavan	The Ohio State University	Poster Presenter
Fehrenbacher, Jennifer	Oregon State University	Discussion Leader
Fichthorn, Kristen	Pennsylvania State University	Speaker
Fratzl, Peter	Max Planck Institute of Colloids and Interfaces	Attendee
Free, Robert D	Northwestern University	Poster Presenter
Fukuma, Takeshi	Kanazawa University	Speaker
Gal, Assaf	Weizmann Institute of Science	Poster Presenter
Geerken, Esmee	Royal Netherlands Institute for Sea Research (NIOZ)	Poster Presenter
Gerdon, Aren E	Emmanuel College	Poster Presenter
Gilbert, Pupa	University of Wisconsin - Madison	Attendee
Gimm, J. Aura	US Army Research Office	Attendee
Gohel, Mayur Danny I	Tung Wah College	Poster Presenter
Görlich, Stefan	B CUBE - Center for Molecular Bioengineering TU Dresden	Speaker
Gower, Laurie B.	University of Florida	Poster Presenter
Granasy, Laszlo	Wigner Research Centre for Physics	Poster Presenter
Grandfield, Kathryn	McMaster University	Speaker
Green, Daniel R	Forsyth Institute	Poster Presenter
Gruenewald, Tilman A	European Synchrotron Radiation Facility (ESRF)	Poster Presenter
Guilliatt, Robert S	Nature Communications	Attendee
Haimov, Heden	Weizmann Institute of Science	Poster Presenter
Hedderick, Konrad	Cornell University Materials Science & Engineering	Poster Presenter
Heinz, Hendrik	University of Colorado Boulder	Discussion Leader
Helmbrecht, Lukas	AMOLF	Poster Presenter
Hendrikse, Hans	AMOLF	Poster Presenter
Hubbard, Mike J	University of Melbourne	Discussion Leader
Iijima, Mayumi	National Institute of Advances Industrial Science and Technology	Poster Presenter
Jacob, Dorrit E	Macquarie University	Poster Presenter
Jahnen-Dechent, Willi	RWTH Aachen University	Poster Presenter
Jantschke, Anne	TU Dresden	Speaker
Jernvall, Jukka	University of Helsinki	Speaker
Jiang, Wenge	McGill University	Poster Presenter
Jinzhe, Du	Tsinghua University	Poster Presenter
Joester, Derk	Northwestern University	Chair
Kahil, Keren	Weizmann Institute of Science	Poster Presenter
Keating, Christine D	Pennsylvania State University	Speaker
Kellner, Christine	University of Bayreuth	Poster Presenter
Kim, Sun-Young	Seoul National University	Attendee
Klein, Ophir D	University of California, San Francisco	Speaker
Kong, Jingjing	School of Life Sciences, Tsinghua University	Poster Presenter
Kröger, Nils	B CUBE, TU Dresden	Attendee
Krounbi, Leilah R	Cornell University	Attendee

Kumar, Santosh	Weizmann Institute of Science	Poster Presenter
Landis, William J	Retired	Attendee
Lee, Chang-Soo	Chungnam National University	Attendee
Li, Ling	Virginia Polytechnic Institute and State University	Speaker
Liu, Zhaoming	Zhejiang University	Poster Presenter
Liu, Chuang	Max Planck Institute of Colloids and Interfaces	Poster Presenter
Lopez-Berganza, Josue A	University of Illinois-Urbana Champaign	Poster Presenter
Ma, Yurong	Beijing Institute of Technology	Poster Presenter
Macias-Sanchez, Elena	Max Planck Institute of Colloids and Interfaces	Poster Presenter
Margolis, Henry C	University of Pittsburgh School of Dental Medicine	Attendee
Masic, Admir	Massachusetts Institute of Technology	Poster Presenter
Mass, Tali	University of Haifa	Attendee
McKee, Marc D	McGill University	Attendee
Medina-Sanchez, Javier	University of Stirling	Poster Presenter
Merk, Vivian	Northwestern University	Poster Presenter
Metoki, Noah	Northwestern University	Speaker
Mirabello, Giulia	Eindhoven University of Technology	Poster Presenter
Mor Khalifa, Gal	Weizmann Institute of Science	Poster Presenter
Moradian-Oldak, Janet	University of Southern California	Vice Chair
Moreno, Bradley K	Northwestern University	Poster Presenter
Mukherjee, Kaushik	University of Southern California	Speaker
Mummadiseti, Manjula	Rutgers university	Poster Presenter
Naveh, Gili	Harvard University	Poster Presenter
Neder, Maayan	University of Haifa	Speaker
Nelea, Valentin	Faculty of Dentistry, McGill University	Poster Presenter
Neshatian, Mehrnoosh	Faculty of Dentistry	Poster Presenter
Ning, Zhenwu	Southwest Jiaotong University	Poster Presenter
Noorduyn, Willem L	AMOLF	Speaker
Nudelman, Fabio	University of Edinburgh	Speaker
Omelon, Sidney J	McGill University	Poster Presenter
Oosterlaken, Bernette M.	Eindhoven University of Technology	Poster Presenter
Oschatz, Cathleen	Max Planck Institute of Colloids and Interfaces	Poster Presenter
Osorio-Madrado, A	University of Freiburg, Institute of Microsystems Engineering IMTEK, Laboratory for Sensors	Poster Presenter
Otter, Laura M.	Macquarie University	Poster Presenter
Paine, Michael L	University of Southern California	Attendee
Perez-Huerta, Alberto	The University of Alabama	Speaker
Politi, Yael	Max Planck Institute of Colloids and Interfaces	Speaker
Pusztai, Tamás	Wigner Research Centre for Physics	Poster Presenter
Quan, Bryan D	University of Toronto	Poster Presenter
Rameshbabu, Utthara	Northwestern University	Poster Presenter
Rice, Katherine P.	CAMECA Instruments	Poster Presenter
Rimer, Jeffrey D	University of Houston	Speaker
Sand, Karina K	Aberystwyth University	Poster Presenter
Schenk, Anna S	University of Bayreuth	Poster Presenter
Schiffmann, Nathan	Weizmann Institute of Science	Poster Presenter
Schmidt, Asher	Technion - Israel Institute of Technology	Poster Presenter

Schoeppler, Vanessa	B CUBE - Center for Molecular Bioengineering	Poster Presenter
Schwarcz, Henry P	McMaster University	Poster Presenter
Shahbazian-Yassar, Reza	University of Illinois at Chicago	Poster Presenter
Shanahan, Catherine M	King's College London	Speaker
Shao, Changyu	Zhejiang University	Speaker
Shin, Sang-Mo S	National Hanbat University	Poster Presenter
Shokuhfar, Tolou	University of Illinois at Chicago	Poster Presenter
Sibony-Nevo, Odelia	Weizmann intitute of science	Poster Presenter
Smeets, Paul J.M.	Northwestern University	Poster Presenter
Sommerdijk, Nico A.J.M.	Eindhoven University of Technology	Speaker
Sone, Eli D	University of Toronto	Discussion Leader
Sova, Susanna S	Univeristy of Helsinki	Poster Presenter
Sroga, Grazyna	Rensselaer Polytechnic Institute	Speaker
Staniland, Sarah S	University of Sheffield	Speaker
Stegbauer, Linus M	Northwestern University	Poster Presenter
Stifler, Cayla	University of Wisconsin-Madison	Speaker
Sun, Chang-Yu	University of Wisconsin-Madison	Poster Presenter
Suzuki, Michio	The University of Tokyo	Poster Presenter
Tang, Teng teng	Max Planck Institute for Colloids and Interfaces	Poster Presenter
Tao, Jinhui	Pacific Northwest National Laboratory	Speaker
Tay, Franklin	Augusta University	Speaker
Thomas, Oliver R. B.	The University of Melbourne	Poster Presenter
Ucar, Seniz	Norwegian University of Science and Technology	Poster Presenter
Ustriyana, Putu A	The University of Akron	Poster Presenter
van Rijjt, Mark M. J.	Eindhoven University of Technology	Poster Presenter
van Ruremonde, Harm	Eindhoven University of Technology	Poster Presenter
Varsano, Neta	Weizmann Institute of Science	Poster Presenter
Vidavsky, Netta	Cornell University	Poster Presenter
Walker, Jessica M	Northwestern University	Poster Presenter
Wang, Wei	Colgate-Palmolive	Attendee
Warren, Waite Ross	University of North Carolina at Greensboro	Poster Presenter
Weaver, James C	Harvard University	Poster Presenter
Weiner, Steve	Weizmann Institute of Science	Attendee
Whitaker, Justin	University of Ottawa	Poster Presenter
Wittig, Nina K	Aarhus University	Poster Presenter
Wojtas, Magdalena A	University of Toronto, IBBME	Poster Presenter
Wolf, Stephan E	Friedrich-Alexander-University Erlangen-Nürnberg	Discussion Leader
Wolfshorndl, Marta	University of Washington	Poster Presenter
Wong, Yue Him	Academia Sinica	Speaker
Xto, Jacinta	Paul Scherrer Institut	Poster Presenter
Xu, Zhijun	Nanjing Tech University	Poster Presenter
Zhang, Gan	Weizmann Institute of Science	Poster Presenter
Zhang, Jun	University of Wisconsin Madison	Poster Presenter
Zhang, Leiqing	Zhejiang university	Poster Presenter
Zhou, Hengyu	Cornell University	Poster Presenter
Zlotnikov, Igor	B CUBE - Center for Molecular Bioengineering TU Dresden	Speaker

Biom mineralization (GRS)

Gordon Research Seminar

Biom mineralization Across Disciplines: Integrating In Vivo, In Vitro and In Silico into an Overall View

July 28 - 29, 2018

Chairs Keren Kahil and Giulia Mirabello

Conference Program

Saturday

- 2:00 pm - 5:00 pm Arrival and Check-in
- 3:30 pm - 3:45 pm Introductory Comments by GRC Site Staff / Welcome from the GRS Chair
- 3:45 pm - 4:30 pm Keynote Session: Biom mineralization: What Does the Future Hold?
Discussion Leaders: **Anne Jantschke** (TU Dresden, Germany) and **Paul Smeets** (Northwestern University, USA)
- 3:45 pm - 3:55 pm **Jeana Drake** (University of California, Los Angeles, USA)
"Toward Sequencing Ancient Stony Coral Skeletogenesis Proteins"
- 3:55 pm - 4:00 pm Discussion
- 4:00 pm - 4:20 pm **Steve Weiner** (Weizmann Institute of Science, Israel)
"Biom mineralization: My View of Where This Field Is Heading"
- 4:20 pm - 4:30 pm Discussion
- 4:30 pm - 6:00 pm Poster Session
- 6:00 pm - 7:00 pm Dinner
- 7:30 pm - 9:30 pm Fundamental Aspects and Biological Control in Biom mineralization
Discussion Leaders: **Gal Mor Khalifa** (Weizmann Institute of Science, Israel) and **Dimitra Athanasiadou** (McGill University, Canada)
- 7:30 pm - 7:45 pm **Oliver Thomas** (The University of Melbourne, Australia)
"Inside the Otolith: The Proteome of the Fish Inner Ear"
- 7:45 pm - 7:50 pm Discussion
- 7:50 pm - 8:05 pm **Netta Vidavsky** (Cornell University, USA)
"Studying the Formation Pathways of Microcalcifications in a Breast Tumor Model"
- 8:05 pm - 8:10 pm Discussion
- 8:10 pm - 8:25 pm **Maksim Beliaev** (B CUBE - Center for Molecular Bioengineering, Technische Universitaet Dresden, Germany)
"The Dynamics of Structural Mesoscale Dislocations in Nacre"
- 8:25 pm - 8:30 pm Discussion
- 8:30 pm - 8:45 pm **Esme Geerken** (Royal Netherlands Institute for Sea Research (NIOZ), The Netherlands)
"Calcite Precipitation Rate in Foraminiferal Calcite and the Impact on Element Incorporation"
- 8:45 pm - 8:50 pm Discussion
- 8:50 pm - 9:05 pm **Robert Free** (Northwestern University, USA)
"Nanoscale Structural and Compositional Changes Within Early-Stage Rodent Caries Lesions"
- 9:05 pm - 9:10 pm Discussion
- 9:10 pm - 9:25 pm **Bin San Chan** (Clemson University, USA)
"Chitin Facilitated Mineralization in the Eastern Oyster"

9:25 pm - 9:30 pm Discussion

Sunday

7:30 am - 8:30 am Breakfast

9:00 am - 11:00 am Bio-Inspired Mineral Formation
Discussion Leaders: **Lukas Helmbrecht** (AMOLF, The Netherlands) and **Jacinta Xto** (Paul Scherrer Institut, Switzerland)

9:00 am - 9:20 am **Karina Sand** (Aberystwyth University, United Kingdom)
"From Inorganic Mineral Formation Toward Biogenic Processes"

9:20 am - 9:25 am Discussion

9:25 am - 9:40 am **Zhaoming Liu** (Zhejiang University, China)
"Influences of Additives on the Phase Transformation of Amorphous Calcium Carbonate"

9:40 am - 9:45 am Discussion

9:45 am - 10:00 am **Anat Akiva** (Eindhoven University of Technology, The Netherlands)
"Visualization of a Tissue Engineered 'Bone': From the Millimeter to the Nanometer Scale"

10:00 am - 10:05 am Discussion

10:05 am - 10:20 am **Linus Stegbauer** (Northwestern University, USA)
"High-Tech Hybrid Nanocomposites of the Chiton Tooth Towards 3D-Printable Materials"

10:20 am - 10:25 am Discussion

10:25 am - 10:40 am **Seniz Ucar** (Norwegian University of Science and Technology, Norway)
"Formation of Hydroxyapatite via Transformation of Amorphous Calcium Phosphate in the Presence of Alginate Additives"

10:40 am - 10:45 am Discussion

10:45 am - 10:55 am **Arghavan Farzadi** (The Ohio State University, USA)
"Modulation of Biomimetic Mineralization of Collagenous Tissue by Soluble Ectodomain of Discoidin Domain Receptor 2"

10:55 am - 11:00 am Discussion

11:00 am - 12:30 pm Poster Session
Coffee will be served in the poster area from 11:00 am - 11:30 am

12:30 pm - 1:30 pm Lunch

1:30 pm - 2:30 pm Mentorship Component: Soft Skills
Discussion Leaders: **Keren Kahil** (Weizmann Institute of Science, Israel) and **Giulia Mirabello** (Eindhoven University of Technology, The Netherlands)

1:30 pm - 2:30 pm **Panel Discussion**
Soft Skills for Conferences: Preparing for the GRC

- **Janet Moradian-Oldak** (University of Southern California, USA)
- **Willem Noorduin** (AMOLF, The Netherlands)
- **Karina Sand** (Aberystwyth University, United Kingdom)
- **Steve Weiner** (Weizmann Institute of Science, Israel)

2:30 pm - 3:00 pm Evaluation Period
Fill in GRS Evaluation Forms

3:00 pm Seminar Concludes

Contributors



Biom mineralization GRS Registration List

Akiva, Anat	Eindhoven University of Technology	Speaker
Alamani, Bryan G	University of Houston	Poster Presenter
Alberic, Marie	Max Planck Institute of Colloids and Interfaces	Poster Presenter
Athanasiadou, Dimitra	McGill University	Discussion Leader
Bapat, Rucha A	University of Southern California	Poster Presenter
Beliaev, Maksim A	B CUBE - Center for Molecular Bioengineering, Technische Universitaet Dresden	Speaker
Buss, Daniel J	McGill University	Poster Presenter
Capua Shenkar, Jenny	Weizmann Institute of Science	Poster Presenter
Chan, Bin San	Clemson University	Speaker
Choi, Siyoung	Cornell University	Poster Presenter
Cook, Philip K	ESRF	Poster Presenter
Couason, Thais C	Institut de Physique du Globe de Paris / CNRS-UMR7154	Poster Presenter
Demmert, Benedikt	Macquarie University and Friedrich-Alexander University Erlangen-Nuremberg	Poster Presenter
DeRocher, Karen A	Northwestern University	Poster Presenter
DiCorato, Alessandra	Northwestern University	Poster Presenter
Drake, Jeana L	University of California, Los Angeles	Speaker
Elias, Jeremy	University of Florida	Poster Presenter
Eren, Deniz	Eindhoven University of Technology	Poster Presenter
Farzadi, Arghavan	The Ohio State University	Speaker
Free, Robert D	Northwestern University	Speaker
Geerken, Esmee	Royal Netherlands Institute for Sea Research (NIOZ)	Speaker
Green, Daniel R	Forsyth Institute	Poster Presenter
Gruenewald, Tilman A	European Synchrotron Radiation Facility (ESRF)	Poster Presenter
Haimov, Heden	Weizmann Institute of Science	Poster Presenter
Hedderick, Konrad	Cornell University Materials Science & Engineering	Poster Presenter
Helmbrecht, Lukas	AMOLF	Discussion Leader
Hendrikse, Hans	AMOLF	Poster Presenter
Jantschke, Anne	TU Dresden	Discussion Leader
Jiang, Wenge	McGill University	Poster Presenter
Joester, Derk	Northwestern University	Poster Presenter
Kahil, Keren	Weizmann Institute of Science	Chair
Kellner, Christine	University of Bayreuth	Poster Presenter
Liu, Zhaoming	Zhejiang University	Speaker
Merk, Vivian	Northwestern University	Poster Presenter
Mirabello, Giulia	Eindhoven University of Technology	Chair
Mor Khalifa, Gal	Weizmann Institute of Science	Discussion Leader
Moradian-Oldak, Janet	University of Southern California	Speaker
Moreno, Bradley K	Northwestern University	Poster Presenter
Mukherjee, Kaushik	Center for Craniofacial Molecular Biology University of Southern California	Poster Presenter
Neder, Maayan	University of Haifa	Poster Presenter
Nelea, Valentin	Faculty of Dentistry, McGill University	Poster Presenter
Neshatian, Mehrnoosh	Faculty of Dentistry	Poster Presenter
Noorduyn, Willem	AMOLF	Speaker

Oosterlaken, Bernette	Eindhoven University of Technology	Poster Presenter
Oschatz, Cathleen	Max Planck Institute of Colloids and Interfaces	Poster Presenter
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