Programme

Underlined person: Presenter

TUESDAY (Oct 10)

09:00-0910 **OPENING ADDRESS**

SESSION 1: Molecular and Cellular Regulation in Biomineralization

09:12-09:33 **O-001 (Keynote) Ion and mineral pathways in biomineralization.** Weiner Steve, Vidavsky Netta, Akiva Anat, Kahil Keren, Nelkenbaum Or, Addadi Lia

09:33-09:45 **O-002 Tracking the early events of mineral formation during coral development.** MassTali, Akiva Anat, Neder Maayan, Kahil Keren, Gavriel Rotem, Pinkas Iddo, Goobes Gil

09:45-09:57 **O-003 Hemocytes in the extrapallial space of Pinctada fucata are involved in immunity and biomineralization.** Huang Jingliang, Li Shiguo, Liu Chuang, Liu Yangjia, Xie Liping, Zhang Rongqing

09:57-10:09 **O-004 Silica biomineralization in the gram-positive, spore-forming bacterium *Bacillus cereus*.** Ikeda Takeshi, Nakagawa Miki, Motomura Kei, Hirota Ryuichi, Kuroda Akio

10:09-10:21 **O-005 Comprehensive profiling of barnacle shell proteins by an integrated transcriptomic and proteomic approach.** Yue Him Wong, Jin Sun, Erina Yoshimura, Yasuyuki Nogata, Mieko Oguro-Okano, Pei-Yuan Qian, Keiju Okano

10:21-10:33 **O-006 Ocean warming influnces biomineralization related gene expression in abalone of Lianjiang.** Zheng Xiangnan

10:33-10:45 **O-007 C/EBP transcription factors regulate Shematrin-2 gene expression in the shell formation of pearl oyster (*Pinctada fucata*).** Chen Yan, Gao Jing, Xie Jun, Liang Jian, Zheng Guilan, Xie Liping, Zhang Rongqing

10:45-10:57 **O-008 Coral biomineralization: going beyond scleractinians.** Conci Nicola, Vargas Sergio, Wörheide Gert

COFFEE BREAK

SESSION 2: Molecular and Cellular Regulation in Biomineralization

11:12-11:24 **O-009 Polymorph selectivity of coccolith-associated polysaccharides.** Walker M. Jessica, Marzec Bartosz, Lee B. Y. Renee, Day Sarah, Tang Chiu, Nudelman Fabio

11:24-11:36 **O-010 Temporal expression of hen uterine transcripts at key steps of shell mineralization.** Gautron Joel, Brinne Aurelien, Bouchez Oliver, Cabau Cedric, ABAU CEDRIC, Hennequet-Antier Christelle, Nys Yves

11:36-11:48 **O-011 Proton transportation of foraminifera for calcification.** Toyofuku Takashi, Matsuo Y Miki, de Nooijer Jan Lennart, Ikuta Tetsuro, Nagai Yukiko

11:48-12:00 **O-012 Chondrocyte membrane fragment-based mineralization in the early stages of secondary ossification.** Hara Satoshi Emilio, Okada Masahiro, Matsumoto Takuya

12:00-12:12 **O-013 Intracellular mechanisms of the biomineral formation process in eukaryotic unicellular organisms (Ciliates).** Lemloh Marie-Louise

12:12-12:24 **O-014 Influence of B vitamins on the proliferation and differentiation of osteoblastic bovine cell cultures; an *in vitro* study.** Urban Kent, Auer Julia, Bürklein Sebastian, Plate Ulrich

12:24-12:36 **O-015 Plant opal formation: What organic matrices are involved in biosilicification of the rice plants?** Ozaki Noriaki, Ishida Takuya, Suzuki Michio, Okano Keiju, Yoshizawa Yuko

12:36-12:48 **O-016 Novel calcification method using biogenic polyamines and its application.** Yasumoto Ko, Iijima Mariko, Kana Fujii, Kubota Azusa, Yasumoto Jun, Yasumoto-Hirose Mina, Jimbo Mitsuru, Watabe Shugo

12:48-13:00 **O-017 The bidirectional influence of sea urchin proteins on calcium carbonate mineralization at physiological pH.** Huang Yu-Chieh, Wu Baohu, Drechsler Markus, Huang Shing-Jong, Chan Jerry Chun Chung, Gebauer Denis

LUNCH

SESSION 3: Structure and Analysis of Biominerals

14:00-14:21 **O-018 (Keynote) Nucleation and growth of crystalline carbonates in confinement.** Joester Derk

14:21-14:33 **O-019 Mesoscale twinning and a two-level domain structure in *Pinctada martensii* shells.** He Jianhan, Zhao Shanrong, Wei Zhuliang, Bismayer Ulrich

14:33-14:45 **O-020 Interaction of calcite, amorphous calcium carbonate, and organic macromolecules in different sea urchin skeletal elements: a hint for biomineralization mechanisms and mechanical properties.** Alberic Marie, Bertinetti Luca, Habraken Wouter, Zolotoyabko Emil, Fratzl Peter, Politi Yael.

14:45-14:57 **O-021 Morphogenesis of glass spicules in Demospongiae.** Zlotnikov Igor, Zaslansky Paul, Zolotoyabko Emil

14:57-15:09 **O-022 Characterization of chemical composition of Mg stabilized amorphous calcium carbonate under different pH conditions by solid-state NMR.** Chan C. C. Jerry, Chang Chun-Yu, Tsao Chieh, Yang Shen-Yu, Lin Cang-Jie

15:09-15:21 **O-023 Structural and molecular understanding of *in situ* bone formation.** Akiva Anat, Melke Johanna, Hofmann Sandra, Sommerdijk Nico

15:21-15:33 **O-024 Biomineralization mechanism and molecular properties of venom fang of *Protobothrops flavoviridis* (Habu) snake.** Ogawa Tomohisa, Sekikawa Asa, Sato Hajime, Muramoto Koji, Shibata Hiroki, Hattori Shosaku

15:33-15:45 **O-025 Structure and functionality of coccolith base plates revealed with cryo-electron tomography.** Marzec Bartosz, Walker Jessica, Jhons Yasmeen, Wheeler Ann, Shaver Michael, Nudelman Fabio

15:45-15:57 **O-026 Chemical element analysis of decapod calcium deposits: focus on phosphorus.** Luquet Gilles, Ziegler Andreas, Paris Céline, Percot Aline, Salomé Murielle, Dauphin Yannicke, Stolarski Jaroslaw

COFFEE BREAK

SESSION 4: Structure and Analysis of Biominerals

16:12-16:24 **O-027 Atom probe tomography (APT) analysis of carbonate biominerals.** Perez-Huerta Alberto

16:24-16:36 **O-028 Studying the early stages of $CaCO_3$ formation using a microfluidic spray dryer.** Du Huachuan, Amstad Esther

16:36-16:48 **O-029 The mineralogical features of aposymbiotic coral skeletons cultured in seawater varied Mg/Ca molar ratios.** Motai Satoko, Kawano Jun, Harii Saki, Watanabe Tsuyoshi, Nagai Takaya

16:48-17:00 **O-030 Polymorphism of $CaCO_3$ crystals via change in hydration structure induced by organic and inorganic additives.** Araki Yuki, Tsukamoto Katsuo, Takagi Ryosuke, Miyashita Tomoyuki, Oyabu Noriaki, Kobayashi Kei, Yamada Hirofumi

17:00-17:12 **O-031 The effect of feeding dietary wood charcoal vinegar on bone remodeling in broiler chicken.** Kinoshita Tsuyoshi, Yamauchi Kohsyo, Hutabarat L Ida Maria, Matsumoto Yoshiki

17:12-17:24 **O-032 Visualization of pH distribution around dissolving/growing calcium carbonate crystals in inorganic solution: a baseline to understand vital effect in biomineralization.** Kawano Jun, Toyofuku Takashi, Nishimura Kaede, Nagai Yukiko, Kawada Sachiko, Teng Henry, Nagai Takaya

17:24-17:36 **O-033 Understanding biomineralization at the nanoscale: the mechanism of collagen mineralization.** Sommerdijk Nico

17:36-17:48 **O-034 Calcium carbonate polymorphism in salmonid fish otoliths: Crystallography and biogeochemistry.** Stolarski Jaroslaw, Ismael Coronado, Lampart-Kałużniacka Magdalena, Mazur Maciej, Meibom Anders

17:48-18:00 **O-035 Role of low molecular weight organic matter for formation of *Acropora* and *Porites* coral skeletal microstructure.** Sowa Kohki, Ijiri Akira, Motai Satoko, Inagaki Fumio, Kosei E Yamaguchi

18:00-18:12 **O-036 3D visualization of calcified and non-calcified molluscan tissues.** Sasaki Takenori, Maekawa Yu, Takeda Yusuke, Atsushiba Maki, Chen Chong, Noshita Koji, Uesugi Kentaro, Hoshino Masato

DINNER

19:00-21:00 **POSTER SESSION - 1 (ODD NUMBERS)**

Discussion time: 19:30-20:30

P-01 TEM study of the radular teeth of the chiton *Acanthopleura japonica*. Kakei Mitsuo, Yoshikawa Masayoshi, Mishima Hiroyuki

P-03 Radially-arranged and bending structures of hydroxyapatite nanorods in the enamel-dentin interfacial region of bovine teeth. Yukimasa Yutaro, Takasaki Mihiro, Oaki Yuya, Imai Hiroaki

P-05 Effect of carbonic anhydrase immobilized on eggshell membranes on calcium carbonate crystallization *in vitro*. Fernandez S María, Montt Betzabe, Neira-Carrillo Andronico, Arias L Jose

P-07 Characterization of goldfish scales by vibrational spectroscopic analyses. Nara Masayuki, Maruyama Yusuke, Hattori Atsuhiko

P-09 Components of fine organic nanofiber in the shell of *Pinctada fucata*. Nishimura Ryo, Suzuki Michio, Imura Yuki, Kintsu Hiroyuki, Kubota Kazuki

P-11 The ratio of three acidic polysaccharides affects coccolith formation in *Pleurochrysis carterae*. Arai Mako, Seki Kazuki, Suzuki Michio, Miyanishi Nobumitsu, Nagasaka Seiji

P-13 The calcified storage structures (gastroliths) in American lobster: Development, composition, and hierarchical structure. Stolarski Jaroslaw, Marta Potocka, Bayer C. Robert, Bowden Timothy, Coronado Ismael, Mazur Maciej, Luquet Gilles

P-15 Uptake of Si and Ge in grasses and accumulation in plant tissue and phytoliths. Kaiser Sabine, Wiche Oliver, Wagner Stephan

P-17 Complementary analyses including trace element proxies and shell microstructure applied to approach growth in Rhynchonelliform brachiopods. Gaspard Daniele, Aldridge Anthony, Boudouma Omar, Fialin Michel, Rividi Nicolas

P-19 A new biomineral microstructure detected in modern brachiopod shells. Simonet Roda Maria del Mar, Griesshaber Erika, Henkel Daniela, Häusermann Vreni, Ziegler Andreas, Eisenhauer Anton, Schmahl W. Wolfgang

P-21 Nucleation behavior of amino acid molecules on single crystal surfaces. Shin Sang-Mo, Seo Jungpil, Jeong Yongchang, Lee Geun Woo

P-23 Citrate promotes collagen mineralization via interfacial energy control. Shao Changyu, Tang Ruikang

P-25 The optical characteristics of cultured Akoya pearl are influenced by both donor oyster and recipient oyster. Iwai Toshiharu, Takahashi Masaharu, Miura Chiemi, Miura Takeshi

P-27 Environmental conditions affect the growth of Akoya pearl oyster (*Pinctada fucata martensii*). Miura Takeshi, Iwai Toshiharu, Wakaki Ren, Miura Chiemi

P-29 The role of basic residues in acidic matrix proteins affecting calcium carbonate mineralization. Araki Ayaka, Furihata Kazuo, Asakura Tomiko, Ngata Koji, Numako Chiya, Akiko Hokura, Suzuki Michio

P-31 The mechanisms underlying phosphate inhibition against calcification of Acroporid coral. Iijima Mariko, Yasumoto Ko, Yasumoto Jun, Yasumoto-Hirose Mina, Jimbo Mitsuru, Watabe Shugo

P-33 Analysis of the factors involved in coccolith formation in the coccolithophore *Pleurochrysis haptonemofera*. Asakawa Koki, Sakurada Shunto, Fujiwara Shoko, Endo Hirotoshi, Suzuki Michio, Kogure Toshihiro, Kubo Rinako, Amano Keisuke, Tsuzuki Mikio

P-35 A novel matrix protein from *Hyriopsis cumingii* with a chitin binding domain is involved in shell biomineralization. Xiaojun Liu, Jinwen Pu, Can Jin, Shaojian Dong, Jiale Li

P-37 Identification of genes related to aragonite/calcite crystal growth in modern scleractinian coral. Yuyama Ikuko, Higuchi Tomihiko

P-39 Molecular analysis of sclerites of the Caribbean sea fan *Gorgonia ventalina* (Octocorallia). Luquet Gilles, Bernay Benoît, Paris Céline, Bouchon-Navaro Yolande, Bouchon Claude, Lopez J. Pascal

P-41 Molecular biological and histological analyses of the tooth germs in the agamid lizard, *Uromastyx* which is a sole non-mammalian vertebrate having enamel prisms. Ishiyama Mikio, Mikami Masato, Kawasaki Kazuhiko

P-43 The role of organic matrix in the biocrystallization process of Syringoporicae (Tabulata, Cnidaria, Carboniferous). Coronado Ismael, Pérez-Huerta Alberto, Rodríguez Sergio

P-45 The shell microstructures of fossil protobranchs and their evolutions; with a focus on the nacre-loss event. Sato Kei

P-47 Fine-scale skeletal banding as a proxy of zooxanthellate symbiosis in modern and fossil Scleractinia. Frankowiak Katarzyna, Kret Slawomir, Mazur Maciej, Meibom Anders, Kitahara Marcelo, Stolarski Jaroslaw

P-49 Cancer Cell Mineralization for Cancer Therapy. Zhao Ruibo, Tang Ruikang

P-51 Physico-chemical characterization of the processes involved in enamel remineralization by CPP-ACP. Cross J. Keith, Huq Laila, Loh Boon, Bhutta Li-Ming, Madytianos Bill, Peterson Sarah, Stanton P. David, Walker Glen, Shen Peiyan, Reynolds C. Eric

P-53 Control of CaOx mineralization through electrocrystallization on PCL electrospun meshes. Neira-Carrillo Andronico, Farias Lazy, Butto NIcole

P-55 "FAHR DISEASE" (idiopathic symmetrical and selective cerebral calcification) is supposed a kind of "ANGIOGENIC DISEASE" from the point of pathological and radiological investigations. Honda Eisuke, Inoue Kiyoharu, Ii Kunio

P-57 Recombinant peptides to control nanohybrid structures composed of inorganic crystals and organic polymers. Ichikawa Rino, Hatakeyama Yukihiro, Nakakido Makoto, Matsunaga Ryou, Nishimura Tatsuya, Tsumoto Kohei, Nagasawa Hiromichi, Kato Takashi

P-59 Dysprosium biomineralization by acidophilic fungus *Penidiella* sp. strain T9 and its application for metal recovery. Horiike Takumi, Kiyono Hajime, Yamashita Mitsuo

P-61 Synthesis of gold nanoparticles by *Lactobacillus casei*. Kato Yugo, Kikuchi Fumiya, Imura Yuki, Yoshimura Etsuro, Suzuki Michio

P-63 Octacalcium phosphate overgrowth on β-tricalcium phosphate substrate in metastable calcium phosphate solution. Iijima Mayumi, Onuma Kazuo

P-65 Pigments analysis in brachiopod shells. Gaspard Daniele, Luquet Gilles, Paris Celine

P-67 History of anthropogenic impacts in 70yr-Tuvalu coral annual bands. Nakamura Nobuko, Ogihara Shigenori, Hosoi Go, Kayanne Hajime, Hiroya Yamano

P-69 Calcium biomineralizations and bioerosion, associated to bioclastic deposits in coastal sequences of the southeastern pampean plain, Argentina. Osterrieth Luisa Margarita, Frayssinet Celia, Frayssinet Lucrecia

P-71 Amorphous silica biomineralizations in soils, paleosoils and sediments in pedosedimentary sequences of the pampean plain, Argentina. Osterrieth Luisa Margarita, Donna Carlos Roberto, Paolicchi Micaela, Benvenuto Maria Laura, Altamirano Maria Estela, Frayssinet Celia, Borrelli Natalia, Alvarez Fernanda Maria, Fernandez Honaine Mariana

P-73 Silk proteins in shell. Toyohara Haruhiko, Takahashi Jun, Yamashita Chieko, Kanasaki Kenji

P-75 Iron is associated with the development of yellow tone in the nacreous layer of Akoya pearl oyster shells. Kasugai Chiaki, Yasumoto Ko, Watabe Shugo, Maeyama Kaoru, Hattori Fumihiro, Nagai Kiyohito, Awaji Masahiko, Kakinuma Makoto

P-77 The carbonate crystallite organization in the shell layers of *Pinctada fucata* and *Anodonta cygnea*. He Jianhan, Griesshaber Erika, Schmahl W. Wolfgang, Bismayer Ulrich

P-79 *In-situ* studies on the early stages of calcium carbonate nucleation from supersaturated micro droplets. Jacinta Xto, Borca Camelia, Henzler Katja, Van Bokhoven Jeroen, Huthwelker Thomas

P-81 Involvement of highly expressed small RNAs in the mantle edge of pearl oyster (*Pinctada fucata*) in nacreous layer formation. Asakawa Shuichi, Huang Songqian,

Ichikawa Yuki, Kinoshita Shigeharu, Omori Fumito, Maeyama Kaoru, Nagai Kiyohito, Watabe Shugo

WEDNESDAY (Oct 11)

SESSION 5: Structure and Analysis of Biominerals

09:00-09:21 **O-037 (Keynote) Coherent nanoprecipitaes in biogenic high magnesium calcite: from structure to function.** Pokroy Boaz

09:21-09:33 **O-038 The study of wetting properties on broccoli leaf surfaces and their time dependent self-healing after mechanical damage.** Barshaw Rich Benjamin, Pokroy Boaz

09:33-09:45 **O-039 Water mediated stresses reveal interactions and functional deformation of mineral and protein in human dentin.** Forien Jean-baptiste, Zizak Ivo, Fleck Claudia, Petersen Ansgar, Fratzl Peter, Zlotoyabko Emil, Paul Zaslansky

09:45-09:57 **O-040 Pathways of biomineralisation by marine organisms - atom by atom growth vs. particle accretion.** Schmahl W. Wolfgang, Griesshaber Erika, Simonet Roda Maria del Mar, Yin Xiaofei, Casella Laura, Greiner Martina, Balazs Kocsis, Maier Bernd, Ziegler Andreas, Kelm Klemens, Fernández-Díaz Lurdes

09:57-10:09 **O-041 Function and habitat induced variation of calcite organization in isopod eye corneal cuticle.** Griesshaber Erika, Alogboso Francisca, Schmahl W. Wolfgang, Ziegler Andreas

10:09-10:21 **O-042 Feeding effect of dietary wood charcoal vinegar (WCV) on chicken bone remodeling.** Hutabarat L Ida Maria, Maryeti Liza, Matsumoto Yoshiki, Mishima Hiroyuki

10:21-10:33 **O-043 X-rays hacking the ghost in the shell.** Cook K Phil, Yıldırım Can, Simons W Hugh, Jakobsen C Anders, Dufour Élise, Cuif Jean-Pierre, Poulsen F Henning, Detlefs Carsten

10:33-10:45 **O-044 Dissecting coccolith biogenesis.** Scheffel André, Brzezinka Magdalena, Faivre Damien, Gal Assaf, Momeni Arash, Sviben Sanja

10:45-10:57 **O-045 Biogenic amorphous calcium oxalate.** Polishchuk Iryna, Weber Eva, Pokroy Boaz

COFFEE BREAK

SESSION 6: Molecular and Cellular Regulation in Biomineralization

11:12-11:33 **O-046 (Keynote) Calcification phenomenon in biosilica producing organisms.** Ehrlich Hermann

11:33-11:45 **O-047 Structural and functional analyses of calcium ion response factors in the mantle of *Pinctada fucata*.** Suzuki Michio, Matsuura Akihiro, Yoshimura Ko, Astumi Takafumi, Tsuchihashi Yasuhi, Takeuchi Takeshi, Satoh Noriyuki, Negishi Lumi, Sakuda Shohei, Kogure Toshihiro, Yoshimura Esturo

11:45-11:57 **O-048 Calcium carbonate crystallization controlled by acid polysaccharides of coccolithophores in *in vitro* calcification.** Shiraiwa Yoshihiro, Oka Kenta

11:57-12:09 **O-049 Biomimetic $CaCO_3$ crystallization and stability regulated by L-Asp: The structure and transformation of the interaction interface.** Schmidt Asher, Ben Shir Ira, Kababya Shifi, Zax B. Zax

12:09-12:21 **O-050 Calcite organization, Ca^{2+} transport and mineral formation in scales of the marine algae *Emiliania huxleyi*.** Yin Xiaofei, Ziegler Andreas, Kelm Klemens, Hoffmann Ramona, Watermeyer Philipp, Alexa Patrick, Villinger Clarissa, Rupp Ulrich, Schlüter Lothar, Reusch B. Thorsten, Griesshaber Erika, Walther Paul, Schmahl W. Wolfgang

12:21-12:33 **O-051 The protein machinery of coccolith formation in the coccolithophore *Emiliania huxleyi*.** Skeffington W Alastair, Fischer Axel, Gorka Michal, Graf Alexander, Scheffel André

12:33-12:45 **O-052 Cryo-FIB SEM observations of ultrastructural framework underlying intracellular mineral formation in alga *Emiliania huxleyi*.** Bertinetti Luca, Sviben Sanja, Schertel Andreas, Scheffel Andre

12:45-12:57 **O-053 Endoplasmic resident proteins functions in the extracellular matrices of bone and dentin.** George Anne, Ramachandran Amsaveni

A GROUP PHOTOGRAPH

LUNCH

SESSION 7: Genome-based Analysis of Biomineralization
& Evolution in Biomineralization

14:00-14:21 **O-054 (Keynote) Biomineralization in vertebrates and the SCPP gene family.** Kawasaki Kazuhiko

14:21-14:33 **O-055 A genome-based approach toward designed synthesis of magnetite nanoparticles in bacteria.** Arakaki Atsushi, Yoda Takuto, Maruyama Mina, Yamagishi Ayana, Matsunaga Tadashi

14:33-14:45 **O-056 Conservative and diverse gene set for coral skeleton formation revealed by comparative proteomics and genomics.** Takeuchi Takeshi, Shinzato Chuya, Satoh Noriyuki, Broussard Cédric, Marin Frédéric

14:45-14:57 **O-057 16S rRNA gene extraction and identification of *Pinctada* species pearls.** Saruwatari Kazuko, Suzuki Michio, Zhou Chunhui, Kessrapong Promlikit, Sturman Nicholas

14:57-15:09 **O-058 Proteomic analysis of shell matrix proteins in *Lymnaea stagnalis*: discrimination of potentially functional proteins using the snail.** Ishikawa Akito, Shimizu Keisuke, Isowa Yukinobu, Takeuchi Takeshi, Fujie Manabu, Sunamura Michinari, Satoh Nori, Endo Kazuyoshi

15:09-15:21 **O-059 Structures, functions, and evolution of skeletal matrix proteins.** Endo Kazuyoshi

15:21-15:33 **O-060 Identification of the proteins involved in tooth mineralization in the giant pacific chiton, *Cryptochiton stelleri* by RNA-seq based transcriptome and proteome analysis.** Nemoto Michiko, Ren Dongni, Herrera Steven, Tamura Takashi, Inagaki Kenji, Kisailus David

15:33-15:45 **O-061 Insights into shell formation in molluscs through shell repair and RNASeq.** Yarra Tejaswi, Hüning Anne, Schilhabel Markus, Gharbi Karim, Blaxter Mark, Clark Melody, Melzner Frank

15:45-16:06 **O-062 (Keynote) Molecular analyses of molluscan shell formation in the post-genomic era.** Jackson John Daniel

COFFEE BREAK

SESSION 8: Bio-inspired Materials Science and Engineering

16:21-16:42 **O-063 (Keynote) Convergent evolution to engineering: Multi-functional bio-composite and biomimetic materials.** Kisailus David

16:42-16:54 **O-064 Study of biomineralization: from biomimetic materials to biomimetic strategy.** Tang Ruikang

16:54-17:06 **O-065 Reduction mechanism for the maximum stress at crack tip in nacre-like layered structures.** Aoyanagi Yuko, Okumura Ko

17:06-17:18 **O-066 Engineering of light weight and high strength materials with bio-inspired hierarchical structures utilizing parts of mollusk shells.** Shin Sang-Mo, Kim Jeoung Woo

17:18-17:30 **O-067 Structural control of inorganic/organic nanohybrids composed of calcium phosphates and polymer templates through biomineralization-inspired crystallization.** Kajiyama Satoshi, Iimura Misato, Nishimura Tatsuya, Kato Takashi

17:30-17:42 **O-068 Synergetic effects of multiple forms of soft matter leads to prismatic-type $CaCO_3$ thin films in seeded mineralization.** Yuan Jiang

17:42-17:54 **O-069 The controlled crystallization and dissolution process of calcium carbonate.** Ma Yurong

17:54-18:06 **O-070 The co-operate influence of Agar polymeric matrices and reagent solution concentrations on gel incorporation and crystal organization in hydrogel-mineral composite aggregates.** Greiner Martina, Yin Xiaofei, Fernández- Díaz Lurdes, Griesshaber Erika, Ziegler Andreas, Schmahl Wolfgang

18:06-18:18 **O-071 Gradients in calcareous biominerals: towards bio-inspired functionally graded ceramics.** Wolf E Stephan, Harris Joe, Böhm F Corinna, Mey P Ingo, Wallis David, Hansen N Lars, Marin Frédéric, Hovden M Robby

DINNER

19:00-21:00 **POSTER SESSION - 2 (EVEN NUMBERS)**
Discussion time: 19:30-20:30

P-02 Structure analysis and property evaluation of spines of planktonic foraminifera. Izumida Kenta, Takasaki Mihiro, Nagai Yukiko, Yuya Oaki, Naito Kimiyoshi, Tanaka Yoshihisa, Toyofuku Takashi, Imai Hiroaki

P-04 On the transition temperature to calcite and lattice constants for various biogenic aragonite. Kogure Toshihiro, Yoshimura Masahiro, Okumura Taiga

P-06 Soft and hard tissue simultaneous observation on site of calcification in calcareous foraminifera. Nagai Yukiko, Uematsu Katsuyuki, Toyofuku Takashi

P-08 Relationship between bone morphology and bone quality in female femurs: Implication for additive risk of alternative forced molting. Ishikawa Natsuko, Nishii Chihiro, Mishima Hiroyuki, Yamauchi Koh-en, Matsumoto Yoshiki

P-10 Spectroscopic investigation of shell pigments in the family Neritidae (Mollusca: Gastropoda). Komura Toshiyuki, Kagi Hiroyuki, Ishikawa Makiko, Sasaki Takenori

P-12 Structural changes in the mineral nanostructure of murine teeth and alveolar bone with age. Akabane Chika, Pabisch Silvia, Wagermaier Wolfgang, Roschger Andreas, Ogura Taku, Tobori Norio, Okano Tomomichi, Murakami Shinya, Fratzl Peter, Weinkamer Richard

P-14 Experimental cremation of bone. Greiner Martina, Kocsis Balazs, Mayer Katrin, Toncala Anita, Grupe Gisela, Schmahl Wolfgang

P-16 Mechanical and optical properties of biosilicas in a rice plant. Funyu Shugo, Sato Kanako, Yamauchi Akira, Ishigure Takaaki, Oaki Yuya, Kisailus David, Ozaki Noriaki, Imai Hiroaki

P-18 The crystalline state of archaeological bone material. Schmahl W. Wolfgang, Greiner Martina, Toncala Anita, Wycisk Dominika, Mayer K., Grupe Giesela, Kocsis Balazs

P-20 Unique crystallographic elongation of aragonite fibers in the crossed lamellar structure of molluscan shells. Kogure Toshihiro, Okumura Taiga, Suzuki Michio, Sasaki Takenori

P-22 The manganese-oxidizing bacterium *Pseudomonas* sp. OK-1 mediates manganese oxides deposition in Yuno-Taki waterfall at Me-Akan, Hokkaido, Japan. Okazaki Megumi, Ishikawa Emi

P-24 Hemocytes play important roles in the pearl sac formation. Miura Chiemi, Iwai Toshiharu, Miura Takeshi

P-26 Coral biomineralization: going beyond scleractinians. Conci Nicola, Vargas Sergio, Wörheide Gert

P-28 Discovery of long-chain polyamines (LCPAs) in a silica layer of the gram-positive, spore-forming bacterium *Bacillus cereus*. Nakagawa Miki, Ikeda Takeshi, Tanaka Tatsuya, Yamamoto Kohjiro, Hirota Ryuichi, Kuroda Akio

P-30 Anisotropic distribution of Starmaker-like protein in calcium carbonate crystals obtained *in vitro*. Rozycka O. Miroslawa, Stolarski Jaroslaw, Zarebski Miroslaw, Dobrucki Jerzy, Ozyhar Andrzej

P-32 Proteomic identification and comparative analysis of shell matrix proteins in brachiopods. Isowa Yukinobu, Sarashina Isao, Kito Keiji, Oshima Kenshiro, Hattori Masahira, Kawashima Takeshi, Fujie Manabu, Satoh Noriyuki, Endo Kazuyoshi

P-34 Exploration of genes associated with sponge silicon biominerals in the whole genome sequence of the hexactinellid *Euplectella curvistellata*. Shimizu Katsuhiko, Kobayashi Hiroki, Amano Taro, Nishi Michika, Tsukahara Masatoshi, Bito Tomohiro, Arima Jiro

P-36 How cells regulate biomineralization processes in sea urchin spines regeneration? Alberic Marie, Bennet Mathieu, Vidavsky Netta, Addadi Lia, Politi Yael, Bertinetti Luca

P-38 Enhancement of nanomagnetite particle production in magnetotactic bacteria by introducing multiple sets of magnetite synthesis genes in the genome. Yoda Takuto, Maruyama Mina, Matsunaga Tadashi, Arakaki Atsushi

P-40 Comparisons of larval and adult shell matrix proteins in molluscs through combined transcriptomic and proteomic analyses. Endo Kazuyoshi, Zhao Ran, Takeuchi Takeshi, Ishikawa Akito, Kobayashi Tatsushi, Koyanagi Ryo, Villar-Briones Alejandro, Yamada Lixy, Sawada Hitoshi, Iwanaga Shunsuke, Nagai Kiyohito, Satoh Noriyuki

P-42 Immunolocalization of enamel matrix protein-like proteins in the tooth enameloid of actinopterygian bony fish. Sasagawa Ichiro, Oka Shunya, Mikami Masato, Yokosuka Hiroyuki, Ishiyama Mikio

P-44 Comparison of shell thickness, microstructures and layer arrangement in parasitic eulimid gastropods. Takano Tsuyoshi, Sasaki, Takenori, Kano, Yasunori

P-46 Possible co-option of engrailed during brachiopod and mollusc shell development. Shimizu Keisuke, Luo Yi-Jyun, Satoh Noriyuki, Endo Kazuyoshi

P-48 Fabrication of hydroxyapatite nanofibers with high aspect ratio via low-temperature wet precipitation methods under acidic conditions. Okada Masahiro, Takuya Matsumoto

P-50 The demonstration of detrimental effects of 0.4%SnF2 gel toothpastes using transmission electron microscopy. Yoshikawa Masayoshi, Kakei Mitsuo, Kanda Yumiko

P-52 Molecular interactions of a peptide encapsulated calcium phosphate delivery vehicle at enamel surfaces. Huq Laila, Cross J. Keith, Ward Brent, Myroforidis Helen, Stanton P. David, Reynolds C. Eric

P-54 Possible growth of chalcedony in the human cerebellum from elderly patients. Prado Figueroa Maria, Casavilca Sandro, Sanchez Juvenal

P-56 Development of helical polymer brushes for the substrate of hybrid materials. Yoshida Takumi, Nishimura Tatsuya, Maeda Katsuhiro

P-58 Nanocrystalline calcium carbonate microlens array with preferred orientation of optical axis. Lee Kyubock, Schmidt Ingo, Zolotoyabko Emil, Werner Peter, Fratzl Peter, Wagermaier Wolfgang

P-60 Formation of amorphous nano-depositions that consisted of selenium and heavy metal by a marine selenate-reducer, *Shewanella* sp. strain KND-1. Sakaguchi Toshifumi, Tanaka Seina, Okamura Yoshiko, Tominaga Yoriko, Maeda Makoto

P-62 Patterns of mineral assembly in hybrid gelatin/agarose hydrogels: Similarities and/or discrepancies between bioinspired and biological biopolymer-carbonate composite materials. Yin Xiaofei, Griesshaber Erika, Fernández-Díaz Lurdes, Ziegler Andreas, García-García Francisco Javier, Schmahl W. Wolfgang

P-64 Oriented hydroxyapatite nanorod array on amorphous nanoparticle substrate. Onuma Kazuo, Iijima Mayumi

P-66 Biominerals in the natural environments of the Arctic. Reykhard Y. Liudmila, Shulga A. Natalia, Dara M. Olga, Novichkova A. Yekaterina, Sapozhnikov V. Philipp, Kozina V. Nina, Kravchishina D. Marina, Boev G. Andrei, Belyaev A. Nikolay, Novigatsky N. Alexander, Kalinina Y. Olga

P-68 Pre-bomb marine reservoir ages using radiocarbon dates of marine mollusks in the Pacific coast of the northern Japan. Nakashima Rei, Fujiwara Osamu, Sawai Yuki, Tamura Toru, Sato Shin'ichi, Hitoki Eri

P-70 Biomineralizations and biogeochemistry of iron, calcium and silica in the pampean coastal plains: Their role in the paleoenvironmental condition and sea level variations during the late cuaternary. Osterrieth Luisa Margarita, Frayssinet Celia, Frayssinet Lucrecia

P-72 A novel matrix protein, PfY2, functions as a crucial macromolecule during shell formation. Yan Yi

P-74 In-depth proteomic analysis of matrix proteins from nascent shells of *Pinctada fucata*. Liu Chuang, Zhang Rongqing

P-76 Proteomics analysis of the cuttlebone of *Sepia officinalis* (Cephalopoda). Luquet Gilles, Le Pabic Charles, Bonnaud-Ponticelli Laure, Lopez J. Pascal

P-78 ADP ribosyl transferases-like matrix proteins regulate the pearly luster via controlling the aragonite crystal orientation in biomineralization of *Pteria penguin* shell nacre. Ogawa Tomohisa, Matsuura Kei, Arakawa Kaori, Naganuma Takako, Muramoto Koji, Yoshimi Kyosuke

P-80 Chitin degradation by chitinolytic enzymes induces crystal defects in calcites in the prismatic layer of *Pinctada fucata*. Kintsu Hiroyuki, Okumu Taiga, Huerta Perez

Alberto, Laiginhas Fernando, Negishi Lumi, Kogure Toshihiro, Sakuda Shohei, Suzuki Michio

P-82 The occurrence of novel N16 and N19 family numbers in the Akoya pearl oyster *Pinctada fucata* and their functional roles in the formation of nacreous layers. Ohmori Fumito, Kinoshita Shigeharu, Funabara Daisuke, Koyama Hiroki, Nagai Kiyohito, Maeyama Kaoru, Okamoto Kikuhiko, Asakawa Shuichi, Watabe Shugo

THURSDAY (Oct 12)

SESSION 9: Biomineralization in Medical and Dental Sciences

09:00-09:21 **O-072 (Keynote) Enhancement of bone tissue repair by octacalcium phosphate crystallizing into hydroxyapatite *in situ*.** Suzuki Osamu, Anada Takahisa

09:21-09:33 **O-073 COOH immobilized Au nanoparticles facilitate hydroxyapatite crystallization and alter its mineralization mode under pseudo-physiological conditions.** Sugiura Yuki, Onuma Kazuo, Yamazaki Atsushi

09:33-09:45 **O-074 Effect of circadian rhythm synchronous factor melatonin on structure, composition, and calcification of dentin and odontoblasts.** Mishima Hiroyuki, Tanabe Saki, Hattori Atsuhiko, Suzuki Nobuo, Kakei Mitsuo, Matsumoto Takashi, Ikegame Mika, Miake Yasuo, Matsumoto Yoshiki

09:45-09:57 **O-075 Mineralized collagen-based composite bone materials for cranial bone regeneration in developing sheep.** Wang Shuo

09:57-10:09 **O-076 Identification of osteogenic compounds in nacre and their mechanism of action.** Rousseau Marthe, Zhang Ganggang, Le Nguyen Hanh Lam, Bianchi Arnaud, Paris Cédric, Mainard Didier, Gillet Pierre

10:09-10:21 **O-077 Harnessing the mineral-inducing properties of the enamel protein amelotin in a collagen matrix.** Ganss Bernhard, Ikeda Yuichi, Abbarin Nastaran, Neshatian Mehrnoosh, Holcroft James

COFFEE BREAK

SESSION 10: Biominerals for Environmental and Palaeoenvironmental Sciences

10:36-10:57 **O-078 (Keynote) Coral-based approaches for paleoclimate studies, future ocean environment assessment and disaster research.** Suzuki Atsushi

10:57-11:09 **O-079 Shell microstructures and their importance in diagenetic mineralogical transitions.** Milano Stefania, Nehrke Gernot

11:09-11:21 **O-080 Temperature dependence of aragonite and calcite skeleton formation by scleractinian coral in low-Mg/Ca seawater.** Higuchi Tomihiko, Shirai Kotaro, Mezaki Takuma, Yuyama Ikuko

11:21-11:33 **O-081 Elemental fractionation mechanism commonly in biongenic calcium carbonate.** Shirai Kotaro

11:33-11:45 **O-082 Nitrogen stable isotopes of carbonate-bound organic materials in fish otoliths: fractionation and application.** Shiao Jen-Chieh, Cheng Li-Chi, Shirai Kotaro, Tanaka Kentaro, Takahata Naoto, Sano Yuji, Hsiao Sung-Yun, Tseng Yung-Che

11:45-11:57 **O-083 Continuous flow-through analyzer of small-sized seawater carbonate system to evaluate response of marine ecosystem against ocean acidification.** Kayanne Hajime, Yamamoto Shoji, Fujita Nori, Hemmi Akihide, Sato Yukari, Nozaki Ken, Harii Saki, Kurihara Haruko, Dickson Andrew

11:57-12:09 **O-084** A **Biomineralization-Inspired Engineering Strategy to Modulate Vaccine with Functional Shell.** Wang Xiaoyu, Xiao Yun, Tang Ruikang

LUNCH / FREE TIME

A HALF-DAY TOUR

19:00-21:00 **BANQUET**

FRIDAY (Oct 13)

SESSION 11: Biominerals for Environmental and Palaeoenvironmental Sciences

09:00-09:12 **O-085 Different responses of biomineralization to ocean acidification.** Kawahata Hodaka, Atsushi Suzuki

09:12-09:24 **O-086 Portuguese oysters produce mechanically weaker shells at elevated CO_2.** Meng Yuan, Guo Zhenbin, Fitzer Susan, Upadhyay Abhishek, Chan Bin San Vera, Li Chaoyi, Cusack Maggie, Yao Haimin, Yeung Kelvin, Vengatesen Thiyagarajan

09:24-09:36 **O-087 Effect of ocean acidification on carbonate chemistry in coral calcifying fluid.** Tanaka Kentaro, Holcomb Michael, Takahashi Asami, Kurihara Haruko, Asami Ryuji, Shinjo Ryuichi, Watanabe Tsuyoshi, McCulloch Malcolm

09:36-09:48 **O-088 Recovery of reduced tellurium by extreme tellurite-resistant and reducer novel bacterium *Shewanella* sp. HIRO-01.** Munar Pascual Madison, Okamura Yoshiko, Matsuo Tadaaki, Kimura Hiromi

09:48-10:00 **O-089 Coral skeleton porosity and density change at high pCO_2 condition.** Kurihara Haruko, Nagamoto Kouhei, Asami Ryuji, Sasaki Osamu

10:00-10:12 **O-090 The effect of microstructure on the degree of diagenetic overprint of proxy archives: A qualitative assessment of alteration deduced from biocarbonate phase, orientation and grain size analysis.** Casella Antonella Laura, He Sixin, Griesshaber Erika, Harper Mary Elizabeth, Ziegler Andreas, Fernández-Díaz Lourdes, Eisenhauer Anton, Schmahl Wilhelm Wolfgang

10:12-10:24 **O-091 Thermal dependency of shell microstructure in bivalve shells of *Scapharca broughtonii*: Culture experimental and geochemical approaches.** Nishida Kozue

10:24-10:36 **O-092 New insights into shell formation of the modern brachiopod Magellania venosa.** Simonet Roda Maria del Mar, Ziegler Andreas, Griesshaber Erika, Henkel Daniela, Häusermann Vreni, Eisenhauer Anton, Schmahl W. Wolfgang

COFFEE BREAK

SESSION 12: Mollusk Shell Formation

10:51-11:12 **O-093 (Keynote) Skeletal organic matrices in metazoans: origin, evolution, diagenesis.** Marin Frederic, Chmiel Aurélien, Takeuchi Takeshi, Bundeleva Irina, Medakovic Davorin

11:12-11:24 **O-094 The cellular basis of shell repair in the eastern oyster, *Crassostrea virginica*.** Andrew Stanley Mount, Vera Bin San Chan, Alfred P Wheeler

11:24-11:36 **O-095 A novel matrix protein, PfY2, functions as a crucial macromolecule during shell formation.** Yan Yi, Yang Dong, Yang Xue, Liu Chuang, Xie Jun, Zheng Guilan, Xie Liping, Zhang Rongqing

11:36-11:48 **O-096 Does the nacro-prismatic "model" exist?** Dauphin Yannicke, Cuif Jean-Pierre

11:48-12:00 **O-097 New data about a forgotten structure: the Marsh's membrane and its potential role in shell biomineralization.** Cuif Jean-Pierre, Dauphin Yannicke

12:00-12:12 **O-098 Characterization of N25, a basic matrix protein serving a critical role in the prismatic layer formation from the pearl oyster, *Pinctada fucata*.** Yang Dong, Yan Yi, Yang Xue, Liu Jun, Zheng Guilan, Xie Liping, Zhang Rongqing

LUNCH

SESSION 13: Mollusk Shell Formation

13:18-13:30 **O-099 Pearl production by implantation of outer epithelial cells isolated from the mantle of Pinctada fucata and the effects of blending of epithelial cells with different genetic backgrounds on pearl quality.** Awaji Masahiko, Yamamoto Takashi, Iwahashi Yasunori, Nagai Kiyohito, Hattori Fumihiro, Maeyama Kaoru, Kakinuma Makoto, Kinoshita Shigeharu, Watabe Shugo

13:30-13:42 **O-100 Comparative RNAseq analysis between pearl sacs producing pearls with different yellow color tones.** Kinoshita Shigeharu, Shinohara Mikihiro, Tang Engkong, Asakawa Shuichi, Funabara Daisuke, Kakinuma Makoto, Maeyama Kaoru, Nagai Kiyohito, Awaji Masahiko, Watabe Shugo

13:42-13:54 **O-101 Screening for genes participating in the formation of prismatic and nacreous layers of the Japanese pearl oyster *Pincatada fucata* by RNA interference knockdown.** Funabara Daisuke, Ohmori Fumito,

Kinoshita Shigeharu, Nagai Kiyohito, Maeyama Kaoru, Okamoto Kikuhiko, Kanoh Satoshi, Asakawa Shuichi, Watabe Shugo

13:54-14:06 **O-102 Substances responsible for yellow color development in the nacreous layer of Akoya pearl oyster.** Kakinuma Makoto, Kasugai Chiaki, Yasumoto Ko, Watabe Shugo, Maeyama Kaoru, Hattori Fumihiro, Nagai Kiyohito, Awaji Masahiko

14:06-14:18 **O-103 Evolution of the prismatic ultrastructure in molluscan shells via hierarchical grain boundary motion.** Zoellner Dana, Zlotnikov Igor

14:18-14:30 **O-104 Structural changes of molluscan shell pigments associated with fossilization revealed by *in situ* micro Raman spectroscopy.** Ishikawa Makiko, Kagi Hiroyuki, Kase Tomoki, Shigeta Yasunari, Matsubara Yuka, Ito Yasuhiro, Endo Kazuyoshi

14:30-14:42 **O-105 Structural and functional analyses of TIMP and MMPs in the ligament of Japanese pearl oyster, *Pinctada fucata*.** Kubota Kazuki, Tsuchihashi Yasushi, Kogure Toshihiro, Maeyama Kaoru, Hattori Fumihiro, Kinoshita Shigeharu, Sakuda Shohei, Nagasawa Hiromichi, Yoshimura Etsuro, Suzuki Michio

14:42-14:54 **O-106 *In-situ* studies on the early stages of calcium carbonate nucleation from supersaturated micro droplets.** Jacinta Xto, Henzler Katja, Borca Camelia, Van Bokhoven Jeroen, Huthwelker Thomas

14:54-15:06 **O-107 Chitin facilitated mineralization in the eastern oyster.** Vera Bin San Chan, Marybeth Johnston, Alfred P Wheeler, Andrew Stanley Mount

15:06-15:18 **O-108 A common growth mechanism forms the nacro-prismatic shell of *U. pictorum*.** Schoeppler Vanessa, Zlotnikov Igor

15:18-15:28 **CLOSING REMARK**