

ALAN W. DECHO, B.S., M.S., Ph.D.

PROFESSOR, former Associate Dean for Research
Department of Environmental Health Sciences (ENHS);
Arnold School of Public Health (ASPH)
University of South Carolina, Columbia, SC. 29208
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<http://www.sph.sc.edu/enhs/decho/default.htm>

ACADEMIC TRAINING:

1989-93 *National Research Council (NRC) Postdoctoral Fellow.* US Geological Survey, Menlo Park, CA.
1987-88 *Fulbright-Hays Post-Doc Scholar,* CSIRO Marine Laboratories, Queensland, Australia
1987 Ph.D. Zoology/Microbiology, Louisiana State University, Baton Rouge, LA
1984 Woods Hole, Marine Biological Laboratory, Woods Hole, MA.
1982 M.S. Zoology/Microbiology, Ohio University, Athens, OH.
1979 B.S. Geology and Biology, Eastern Connecticut State University, CT

APPOINTMENTS

2014-2023 *Associate Dean for Research,* Arnold School of Public Health (ASPH), USC.
2010-2013 *Associate Chair and Director of Graduate Studies,* Dept. ENHS, USC
2003-present *Professor,* Department of Environmental Health Sciences (ENHS), USC.
1998 *Associate Professor,* Department ENHS, USC.
1994 *Assistant Professor,* Department ENHS, Arnold School of Public Health,
University of South Carolina (USC), Columbia, SC.
1989-93 United States Geological Survey, Menlo Park, CA. (joint)
1988-93 PostDoc/Research Scientist, Stony Brook University, New York (joint)

RESEARCH

Bacterial Biofilms in environmental & health settings.

Foci:

- chemical communication (quorum sensing);
- extracellular polymeric matrix (EPS)
- microbial survival under extreme conditions;
- Isolation of novel antibiotics;
- nanotechnology for enhanced antibiotic delivery to resistant infections;

PROFESSIONAL HONORS AND AWARDS

2021 ***Elected AAAS Fellow*** (American Assoc. for Advancement of Science) Area: Microbiology;
2013 ***FULBRIGHT Senior Research Fellow***, (University of St. Andrews, SCOTLAND);
2013 ***MASTS Fellowship*** (Marine Alliance for Science/Technology in Scotland), SCOTLAND;
2004 ***American Society Microbiology (ASM) Division Q Lectureship;***
2003 ***Educational Foundation Award for Research in Health Sciences*** (USC);
1999 ***Researcher of the Year – Arnold School of Public Health*** (USC);
1990 ***National Research Council (NRC) Postdoctoral Fellow***, USGS, Menlo Park, CA;
1987 ***FULBRIGHT Postdoctoral Scholar***, CSIRO Marine Laboratory, Queensland, AUSTRALIA;
1983 ***National Science Foundation (NSF) Dissertation Award.*** (OCE-8313109);

COURSES TAUGHT

SCHC 401 – USC Honors College: Microbes in Health, Infections and Environments- Biofilms;
ENHS 665 - Biofilms in the Environment, Health and Disease;
ENHS 450 – Introduction to Public Health Microbiology;
ENHS 794- Research Methods for Environ. Hlth Sciences;
ENHS 770 - Microbial Processes and Pollution;
ENHS 787 - Analytical Concepts in Environmental Health Sciences;

GRANT REVIEW PANELS

2019. NASA (National Aeronautics Space Admin),	<i>Exobiology Program</i>
2018. NASA (National Aeronautics Space Admin),	<i>Exobiology Program</i>
2012. NSF (National Science Foundation),	<i>Dimensions in Biodiversity Program</i>
2008. NSF (National Science Foundation),	<i>Microbial Observatories Program</i>
2004. NIEHS (National Institute Environ. Health Sci.),	<i>Superfund Program</i>
2002. NSF (National Science Foundation),	<i>Microbial Observatories Program</i>
1999. NIEHS (National Institute Environ. Health Sci.),	<i>Superfund Program</i>
1998. NSF (National Science Foundation),	<i>OCE Polar Programs</i>

EDITOR AND EDITORIAL BOARDS

<i>Editor,</i>	Advances in Microbiology, 2013-2016;
<i>Editorial Board,</i>	Advances in Microbiology, 2010-2012;
<i>Guest Editor, Special Issue: 'Nanoparticle-Biofilm Interactions',</i>	Frontiers in Microbiology, 2015;
<i>Guest Editor, Special Issue: 'Biofilms: Extracellular Bastions of Bacteria'</i>	Int. J. Mol. Sci. (IJMS) 2013;

JOURNAL REVIEWER:

<i>Science</i>	<i>PNAS (Proc. Natl. Acad. Sci. USA)</i>
<i>Nature Reviews in Microbiology</i>	<i>Nature Communications</i>
<i>Ecology</i>	<i>Chemical Reviews</i>
<i>ISME Journal</i>	<i>Scientific Reports</i>
<i>PLoS ONE</i>	<i>Geology</i>
<i>ACS Nano</i>	<i>JACS (J Amer Chem Soc)</i>
<u><i>Others</i></u>	
Applied Environmental Microbiology	Trends in Microbiology
Drug Resistance	Advances in Microbiology
Frontiers in Microbiology	International J Molecular Sciences
NanoImpact	J. Industrial Microbiology
Aquatic Biology	FEMS Microbial Ecology
Aquatic Ecology	Environmental Microbiology
Aquatic Microbial Ecology	J. Experimental Marine Biol. Ecology
Biofouling	Biofilms
Marine Biology	J. Sedimentary Research
Biogeochemistry	Marine Biotechnology
BioTechnology Journal	Marine Ecology Progress Series
BioTechnology Progress	Marine Environmental Research
Canadian J. Fisheries & Aquatic Sci.	Microbial Ecology
Carbohydrate Research	Methods in Enzymology
Continental Shelf Research	Marine Chemistry
Deep-Sea Research	Trans. American Microscopical Assoc.
Ecological Engineering	Microscopy and Microanalysis
Environmental Sci. & Technol;	Water Research
Sensors	Estuarine Coastal Shelf Science
Water Science and Technology	Polar Biology
J. Inorganic Biochemistry	J. Sedimentary Research
J. Phycology	J. Plankton Research

GRANTS

CURRENT GRANTS

- 2025-2030 **National Institutes of Health (NIBIB/NIH RO1)** [1R01EB038047-01](#) 5 yrs
Engineering Cationic MetalloPolymers to Potentiate Antibiotics via Multiple Mechanisms. C. Tang (PI), **AW Decho**, M. Uline, M. Nagarkatti, C. Cai (Co-Is);
- 2019-2026 **National Institutes of Health (NIH-NIAID RO1)** 6 yrs (w/NCE)
Control of Facial Amphiphilicity to Tune Macromolecular Interactions with Bacteria. C. Tang (PI). **AW Decho**, M. Nagarkatti (Co-PI); [\[A1149810-01A1\]](#)

COMPLETED

- 2018-2023 **National Institutes of Environmental Health Sciences (NIEHS-PO1),** 5 yrs
“Center for Assessment and Prediction of Interactions of Climate Change on Oceans and Human Health (CAPICCOHH): Assessment of Effects on Ocean Health Related Illness/Disease, and Development of Prevention Strategies to Protect Public Health. GI Scott (Dir). RS Norman PI; **AW Decho** (Co-PI) [\[1P01 ES028942-01\]](#)
- 2018-2023 **National Aeronautics Space Admin (NASA)- Exobiology Program** 5 yrs
Cooperation and Adaptability in Microbial Mats from Extreme Environments: Quorum Sensing and its Relation to Early Life on Earth and Elsewhere.
AW Decho (PI); PSG. Chain, S. Donachie (Co-Is); [\[17-EXO17 20120\]](#)
- 2021-2023 **Environmental Molecular Sciences Laboratory (EMSL), Pacific Northwest National Laboratory (PNNL);** 2 yrs
Bacterial ‘cell-cell talk’ in complex microbial communities: identifying diverse and Novel quorum sensing signals in extreme environments. **AW Decho (PI)**; P. Williams, S Donachie, R. Prescott, P. Chain (Co-Is). No USC funds; provides resources on-site (EMSL) instrument use. [\[51876\]](#)
- 2017-2020 **National Science Foundation (NSF) Post-Doctoral Research Fellowship** 3 yrs
PI: Rebecca Prescott, (Mentor) AW Decho. *NSF Postdoctoral Fellowship in Biology. FY 2017 Topic:* QS-mediated changes in gene expression in microbial mats of extreme environments. [\[DBI-1711856\]](#)
- 2016-2019 **National Science Foundation (NSF) - BioMaterials Prog.** [\[1608151\]](#) 4 yrs
 Facial amphiphilic antimicrobial biomaterials-containing fused multicyclic structures. PI C Tang, Co-PI: **AW Decho**, J. Ebalunode;
- 2015-2019 **National Institutes of Health (NIH-RO1)** [\[A1120987\]](#) 4 yrs
Establishing a New Paradigm of Metallopolymers to Reinstate Vitality of Antibiotics against Multidrug Resistant Bacteria. PI: C Tang, Co-I: **AW Decho**, M Nagarkatti, M Chruszcz;
- 2012-2015 **National Science Foundation (NSF) Biomaterials Prog.** [\[1206072\]](#) 3 yrs
Natural resin acid-containing antimicrobial materials: synthesis, mechanisms of action. PI: C Tang; Co-PI: **AW Decho**;
- 2010-2014 **National Science Foundation (NSF) Biomed Eng (BME)Prog.** [\[1032579\]](#) 3 yrs
Engineering the surface chemistry of nanoparticles: a two-staged attack on Infection biofilms. PI: **AW Decho**, Co-PI: Benicewicz BC.
- 2007-2010 **National Science Foundation (NSF) Environ. Gen. Prog.** [\[0723707\]](#) 3 yrs
En-Gen: Bacterial communication in microbial mats: Metagenomic Approach to understanding quorum sensing gene diversity/ expression.

- (PI: RS Norman Co-PI: **AW Decho**)
- 2006-2008 **DOE: Community Sequencing Program (CSP)** (2 yrs) *Sequencing lithifying (CaCO₃) marine stromatolite mat communities relevant to carbon record*
(PI: **AW Decho**; Co-PIs: RS Norman, RP Reid, PT Visscher)
- 2005-2010 **National Science Foundation (NSF)**, CRC Program [0526821] 3 yrs
Characterization of Changes in molecular structure and activity of autoinducer molecules relevant to bacteria chemical communication.
(PI: **AW Decho**; Co-PIs: J Ferry, SM Angel, PL Ferguson)
- 2003-2008 **National Science Foundation (NSF)** BioComplexity Prog. [0221796] 3 yrs
Biocomplexity of marine stromatolites: Biogeochemical cycling, microbial population dynamics, and mineral formation in a three-billion-year-old ecosystem. PI:RP Reid, Co-PI: **AW Decho**, P Visscher, R Marinelli, J Stolz
- 2002-2007 **National Science Foundation (NSF)** Microbial Observatories Prog. [0132528] 5 yrs
Anhydrophilic, halotolerant microbial mats of San Salvador Island, Bahamas.
(PI: H. Paerl; Co-PI: **AW Decho**, T. Steppe, J. Pinckney)
- 2000-2004 **National Oceanic and Atmospheric Administration (NOAA).** 5 yrs
Land-use effects on bioavailability and toxicity of urban contaminants in Waters/Sediments of Coastal Estuaries PI: **AW Decho**; Co-PI: Chandler)
- 1997-2000 **Department of Defense (DOD).** *Accelerated Research on biofouling.* 3 yrs
(PI: M Fletcher; CoPI: **AW Decho**, C Lovell)
- 1997-2000 **Environmental Protection Agency (EPA)/ EPSCoR.** *A Multidisciplinary Effort Linking Impacts of Sediment Contaminants on Toxicological Responses with Genetic Adaptation* (PI: BC Coull; CoPI: **A Decho**, GT Chandler, T Shaw, J Quattro)
- 1996-2002 **Office of Naval Research (ONR).** Environ. Optics Program, 7 yrs
Microbial Biofilms: A Parameter Altering the Optical Properties of Sediments and Other Surfaces. PI: **AW Decho**
- 1996-2002 **National Oceanic and Atmospheric Administration (NOAA).** Office of Oceanic Research Programs, *Urbanization of southeastern estuarine systems (USES).* Co-Directors J Vernberg and W Vernberg. **Decho** (Co-I)
- 1996-1999 **National Science Foundation (NSF)** Biol. Oceanogr. Prog [OCE-9617738] 3 yrs
Microstructure in Modern Marine Stromatolites: A Geomicrobiological Investigation of Processes forming Lithified Micritic Laminae." (PI: RP Reid; Co-PI: **AW Decho**, PT Visscher)
- 1995-1998 **National Science Foundation (NSF)** Biol Oceanogr. Prog [OCE-9416749] 3 yrs
Experimental Analysis of Waterborne Chemical Cues as Agents Regulating Larval Settlement-Metamorphosis.(PI: RK Zimmer; Co-PI: **AW Decho**, J Eckman)
- 1983-1985 **National Science Foundation (NSF)** Biol. Oceanogr. Prog. [OCE-8313109] 3 yrs
Dissertation Grant. Interactions of microbial flora and dissolved organic compounds with estuarine meiofauna. PI: JW Fleegeer; Co-PI: **AW Decho**,

PUBLICATIONS

FIVE NOTEWORTHY PUBLICATIONS

- Rahman, MA; Bam, M; Luat, E; Jui, MS; Ganewatta, M; Shokfai, T; Nagarkatti, M; **Decho, AW**; Tang, C. 2018. *Macromolecular-Clustered Facial Amphiphilic Antimicrobials*. **Nature Communications** 9, 5231, doi: [10.10038/s41467-018-07651-7](https://doi.org/10.10038/s41467-018-07651-7). [IF = 14]
- Decho AW**, RL Frey, JL Ferry 2011. *Chemical challenges to bacterial AHL signaling in the environment*. **Chemical Reviews** 111(1), 86-99 doi: [10.1021/cr100311q](https://doi.org/10.1021/cr100311q) [JOURNAL COVER, [IF= 51]
- Ferry JL, P Craig, C Hexel, P Sisco, R Frey, PL Pennington, MH Fulton, IG Scott, **AW Decho**, S Kashiwada, CJ Murphy, TJ Shaw. 2009. *Transfer of gold nanoparticles from the water column to the estuarine food web*. **Nature Nanotechnology** 4(7), 441-444. [IF = 34] doi-org.pallas2.tcl.sc.edu/10.1038/nnano.2009.157
- Reid RP, PT Visscher, **AW Decho**, et al. 2000. *The role of microbes in accretion, Lamination, and early lithification of modern marine stromatolites*. **Nature** 406 (6799), 989-992. [IF = 48] doi-org.pallas2.tcl.sc.edu/10.1038/35023158
- Decho AW**. 1990. *Microbial exopolymer secretions in ocean environments: Their role(s) in food webs and marine processes*. **Oceanography Marine Biology Annual Reviews** 28, 73-154. Doi.org/10.1201/9781482267280. eBook ISBN 9780429077715. [>1,900 citations]

TOTAL PUBLICATIONS

Citations: Google Scholar >17,600; H=61; WoS >10,900; H=52
*underlined authors = Decho students/postdocs [55% at USC]

137. Barman, S; Abiodun, A; Parris, A; Wang, X; Hossain, MW; Nagarkatti, P; Nagarkatti, M; **Decho, AW**; Tang, C. 2026. Potent racemic antimicrobial polypeptides uncovered by a stereochemical series of cationic D/L backbones. **J. Amer. Chem. Soc. (JACS)**. doi: [10.1021/jacs.5c19741](https://doi.org/10.1021/jacs.5c19741) (IF=15)
136. Visscher PT, Boussagol P, Bourillot R, Dupraz C, Braissant O, **Decho AW**, Burns BP, White III RA, Tomko P, Vennin E. 2026. A critical role of heterotrophic bacteria in early diagenesis of carbonates through exopolymer degradation and calcium release. **The Depositional Record**. (in press)
135. Handel CR, Prescott RD, Sharma G, Lo C, Chain PSG, **Decho AW**, P Williams, O'Donnell T, Balkwill L, Wang J, Curtis PD, Saw JH, Donachie SP (submitted). First Experimental evidence of N-acyl-homoserine lactone production in Gram-positive Actinomycetota and in two newly described Gram-negative species from underexplored environments. **Frontiers Microbiology**
134. Barman S, R Leighton, L Kurnaz, C Tang, **AW Decho**. 2024. Intrinsic Antimicrobial Resistance: Molecular Biomaterials to Combat Microbial Biofilms and Bacterial Persisters. **BioMaterials** 311: 122690 doi.org/10.1016/j.biomaterials.2024.122690 (IF = 13)
133. Prescott R., Chan Y, Tong E 'Iwakeli'i, Onouye CT, Handel C, Lo C-C, Davenport K, Johnson S, Flynn M, Saito JA, Lee H, Lawson BN, Hiura K, Sager K, Sadones M, Esibill D, Cockell CS, Santomartino R, Chain PSG, **Decho AW**, Donachie SP. 2023. Bridging place-based science education and space research through microbial genomics, with descriptions of *Bradyrhizobium prioritasperba*, sp. nov., *Dickeya ulupoensis*, sp. nov., and *Pseudoflavitalea hawaiiensis* sp. novel. **Astrobiology** 23/12. 1348-1367. doi: [10.1089/ast.2023.0072](https://doi.org/10.1089/ast.2023.0072)
132. Balbay MG, Shlafstein M, Cockell C, Cady SL, Prescott RD, Lim D, Chain PSG, Donachie SP, **Decho AW**, Saw JH. 2023. Metabolic potential and phylogenetic placement of novel Aigarchaeota from geothermal features of Hawai'i and Chile. **Frontiers Microbiology** 14: 1216591. doi: [10.3389/fmicb.2023.1216591](https://doi.org/10.3389/fmicb.2023.1216591)
131. Leighton RE, Xiong L, Anderson GK, Astarita G, Cai G, Norman RS, **Decho AW**. 2023. *Vibrio*

- parahaemolyticus* and *Vibrio vulnificus* In Vitro Biofilm Dispersal from Microplastics Influenced by Simulated Human Environmental Factors. **Frontiers Microbiology** 14: 1236471. doi: [10.3389/fmicb.2023.1236471](https://doi.org/10.3389/fmicb.2023.1236471)
130. Jesmin R, JW Cary, M Lebar, R Majumdar, PM Gummadidala, T Dias, S Chandler, P Basu, **AW Decho**, NP Keller, A Chanda. 2023. *Vibrio gazogenes*-dependent disruption of aflatoxin biosynthesis in *Aspergillus flavus*: the connection with endosomal uptake and hyphal morphogenesis. **Frontiers Microbiology** 14: 1208961. doi: [10.3389/fmicb.2023.1208961](https://doi.org/10.3389/fmicb.2023.1208961)
129. Barman, S, Kurnaz L; Li X; Nagarkatti M; Nagarkatti P; **Decho, AW**; Tang, C. 2023. Facially Amphiphilic Bile Acid Functionalized Antimicrobials: Combating Pathogenic Bacteria, Fungi, and their Biofilms. **ACS Infectious Disease** 9, 9, 1769-1782. doi: [10.1021/acsinfecdis.3c00266](https://doi.org/10.1021/acsinfecdis.3c00266)
128. Correa Velez KE, RE Leighton, **AW Decho**, JL Pinckney, and RS Norman. 2023. Modeling pH and temperature effects as climatic hazards in *Vibrio vulnificus* and *Vibrio parahaemolyticus* planktonic growth and biofilm formation. **GeoHealth** 7: 4, e2022GH000769 doi: [10.1029/2022GH000769](https://doi.org/10.1029/2022GH000769)
127. Leighton, R, KE Correa Vélez, L. Xiong, AG Creech, KP Amirichetty, GK Anderson, G Cai, RS Norman **AW Decho**. 2023. *Vibrio parahaemolyticus* and *Vibrio vulnificus* Colonization on Plastics Influenced by Temperature and Strain Variability. **Frontiers Microbiology**. 13: 1099502. doi.org/[10.3389/fmicb.2022.1099502](https://doi.org/10.3389/fmicb.2022.1099502)
126. Kurnaz L; Luo Y; Li X; Alabresm A; Leighton R; Kumar R; Hwang J; **Decho AW**; Nagarkatti P; Nagarkatti M; Tang C. 2023. Facial Amphiphilicity Index as a Robust Tool to Correlate Chemical Structures with Antimicrobial Efficacy. **Bioactive Materials** 20: 519-527. doi.org/[10.1016/j.bioactmat.2022.06.009](https://doi.org/10.1016/j.bioactmat.2022.06.009) (IF = 20)
125. Li H, Yang P, Hwang J-H, Pageni P, **Decho AW**, Tang C. 2022. Antifouling and Antimicrobial Cobaltocenium-Containing Metallopolymer Double-Network Hydrogels. **Biomaterials Translational** 3(2): 162. doi.org/[10.12336/biomatertransl.2021.01.000](https://doi.org/10.12336/biomatertransl.2021.01.000) (IF = 12)
124. Prescott RD, Zamkovaya T, Donachie SP, Northup DE, Medley JJ, Monsalve N, Saw JH, **Decho AW**, Chain PSG, Boston PJ. 2022. Islands Within Islands: Bacterial Phylogenetic Structure and Consortia in Hawaiian Lava Caves and Fumaroles. **Frontiers Microbiology** 13: 934708. doi: [10.3389/fmicb.2022.934708](https://doi.org/10.3389/fmicb.2022.934708)
123. Suosaari E, AM Oehlert, I Lascu, **AW Decho**, AM Piggot, AT Palma, PF Machabee, RP Reid. 2022. Environmental and biological controls on sedimentary bottom types in the Puquios of the Salar de Llamara, northern Chile: An EPS Story. **Geosciences** 12, 247. doi.org/[10.3390/geosciences12060247](https://doi.org/10.3390/geosciences12060247)
122. Cao X, L Xu, YP Chen, **AW Decho**, Z Cui, J Lead. 2022. Contribution, composition and structure of EPS by *in vivo* exposure to elucidate the mechanisms of nanoparticle-enhanced bioremediation to heavy metals. **Environmental Science & Technology** 56(2), 896-906; doi: [10.1021/acs.est.1c05326](https://doi.org/10.1021/acs.est.1c05326) (IF = 11)
121. Bose D, S Chatterjee, E Older, R Seth, P Janulewicz, P Saha, A Mondal, **AW Decho**, K Sullivan, N Klimas, S Lasley, J Li, S Chatterjee. 2022. Altered gut resistome presents a unique biome signature in chronic multi-symptom illness and links persistent pro-inflammatory phenotype in a preclinical model. **Communications Biology** 5:552; doi.org/[10.1038/s42003-022-03494-7](https://doi.org/10.1038/s42003-022-03494-7) (IF = 6.3)
120. Alabresm A, **AW Decho**, J Lead. 2021. A novel method to estimate cellular internalization of nanoparticles into Gram-negative bacteria: Non-lytic removal of outer membrane and cell wall. **NanoImpact** 21: 100283; doi: [10.1016/j.impact.2020.100283](https://doi.org/10.1016/j.impact.2020.100283).
119. Yang, P, Luo, Y, L. Kurnaz, M Bam, X Yang, **AW Decho**, M Nagarkatti, C Tang. 2021. Biodegradable polycaprolactone metallopolymer-antibiotic bioconjugates containing phenylboronic acid and cobaltocenium for antimicrobial applications. **Biomaterials Science** 9: 7237-7246.

- doi: [10.1039/D1BM00970B](https://doi.org/10.1039/D1BM00970B). (IF= 7)
118. Alabresm A, SL Chandler, BC Benicewicz, **AW Decho**. 2021. NanoTargeting of Resistant Infections with Special Emphasis on the Biofilm Landscape. **Bioconjugate Chemistry** 32: 1411-1430. doi:[10.1021/acs.bioconjchem.1c00116](https://doi.org/10.1021/acs.bioconjchem.1c00116). PMC8527872; PMID: [34319073](https://pubmed.ncbi.nlm.nih.gov/34319073/)
117. Cao X, L Xu, **AW Decho**, J. Lead. 2021. A method for cultivation, fractionation, and metal determination to evaluate metal removal by the combination of NPs and bacteria. **MethodsX**, 8: 101550. doi: [10.1016/j.mex.2021.101550](https://doi.org/10.1016/j.mex.2021.101550)
116. Alabresm, A., YP Chen, S Wichter-Chandler, J Lead, BC Benicewicz, **AW Decho** 2020. Nanoparticles as antibiotic-delivery vehicles (ADV) overcome resistance by MRSA and other MDR bacterial pathogens: the grenade hypothesis. **Journal Global Antibiotic Resistance** 22: 811-817 doi:[10.1016/j.jgar.2020.06.023](https://doi.org/10.1016/j.jgar.2020.06.023).
115. Prescott, RD and **AW Decho**. 2020. Flexibility and adaptability of quorum sensing in nature. **Trends in Microbiology** 28(6):436-444. doi:[10.1016/j.tim.2019.12.004](https://doi.org/10.1016/j.tim.2019.12.004); (Journal Cover) (IF= 15)
114. Rahman, MA; Jui, MS; Bam, M; Cha, Y; Luat, E; Alabresm, A; Nagarkatti, M; **Decho, AW**; Tang, C. 2020. Facial Amphiphilicity-Induced Polymer Nanostructures for Antimicrobial Applications. **ACS Applied Materials & Interfaces** 12(19): 21221-21230. doi: [10.1021/acsami.9b19712](https://doi.org/10.1021/acsami.9b19712)
113. Cao, X, Alabresm, A, Chen, YP, **Decho, AW**, Lead, J. 2019. Improved metal remediation using a combined bacterial and nanoscience approach. **Science of Total Environment** doi:[10.1016/j.scitotenv.2019.135378](https://doi.org/10.1016/j.scitotenv.2019.135378).
112. Yang, P, Pageni P, Rahman MA, Bam M, Zhu T, Cheng YP, Nagarkatti M, **Decho AW**, Tang C. 2019. Gold Nanoparticles with Antibiotic-Metallopolymers toward Broad-Spectrum Antimicrobial Effects. **Advanced Healthcare Materials** 1800854; doi:[10.1002/adhm.201800854](https://doi.org/10.1002/adhm.201800854).
111. Decho, AW. 2018. Biological hotspots in oceans as unique reservoirs for novel antibiotics. **Journal of Marine Microbiology**. 2(1): 14-16.
110. Rahman MA; Bam M; Luat E; Jui MS; Shokfai T; Nagarkatti M; **Decho AW**; Tang C. 2018. Macromolecular-Clustered facial amphiphilic antimicrobials. **Nature Communications** 9, 5231, doi: [10.10038/s41467-018-07651-7](https://doi.org/10.10038/s41467-018-07651-7). (IF= 14)
109. Pageni P; Yang P; Bam M; Zhu T; Chen YP; **Decho AW**; Nagarkatti M; Tang C. 2018. Recyclable Magnetic nanoparticles grafted with antimicrobial metallopolymer-antibiotic bioconjugates. **BioMaterials** 178:363-372. doi:[10.1016/j.biomaterials.2018.05.007](https://doi.org/10.1016/j.biomaterials.2018.05.007). (IF= 17)
108. Ganewatta, MS; Rahman, MA; Mercado, L; Shokfai, T; **Decho, AW**; Reineke, TM; Tang, C. 2018. Facially amphiphilic polyionene biocidal polymers derived from Lithocholic acid. **Bioactive Materials** 3(2): 186-193. doi:[10.1016/j.bioactmat.2018.02.001](https://doi.org/10.1016/j.bioactmat.2018.02.001). (IF= 14)
107. Pageni P; Yang P; Chen YP; Huang Y; Bam M; Zhu T; Nagarkatti M; Benicewicz B; **Decho AW**; Tang C. 2018. Charged Metallopolymer-Grafted Silica Nanoparticles for Antimicrobial Applications. **Biomacromolecules**. 19(2): 417-425; doi: [10.1021/acs.biomac.7b01510](https://doi.org/10.1021/acs.biomac.7b01510) (IF= 6)
106. Alabresm, A; YP Chen; **AW Decho**; J Lead. 2018. A Novel Method for the Synergistic Remediation of Oil-Water Mixtures Using Nanoparticles and Oil-Degrading Bacteria. **Science of Total Environment** 630:1292-1297. doi: [10.1016/j.scitotenv.2018.02.277](https://doi.org/10.1016/j.scitotenv.2018.02.277)
105. Astasov-Frauenhoffer M, Varenganayil MM, **Decho AW**, Waltimo T, Braissant O. 2017. Exopolysaccharides regulate calcium flow in cariogenic biofilms. **PLoS ONE** 12(10): e0186256. doi:[10.1371/journal.pone.0186256](https://doi.org/10.1371/journal.pone.0186256).
104. Gummadidala PM, Holder ME, O'Brien JL, Ajami NJ, Petrosino JF, Mitra C, Chen YP, **Decho AW**, Chanda A. 2017. Complete genome sequence of *Vibrio gazogenes* ATCC 43942. **Genome Announcements** 5(30), e00733-17. doi: [10.1128/genomeA.00733-17](https://doi.org/10.1128/genomeA.00733-17)
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- 4 **Decho AW**, R Castenholz. 1986. Spatial patterns and feeding of meiobenthic harpacticoid copepods in relation to resident microbial flora. **Hydrobiologia** 131:87-96.
- 3 **Decho AW**, JW Fleeger. 1986. A new meiobenthic species of *Laophonte* (Copepoda: Harpacticoida) from the Florida Keys. **Transactions of American Microscopy Society** 105: 31-37.
- 2 **Decho AW**, WD Hummon, JW Fleeger. 1985. Meiofauna-sediment interactions around subtropical seagrass sediments using factor analysis. **Journal of Marine Research** 43: 237-255.
- 1 **Decho AW**. 1984. Occurrence of a Cephalocarid (*Lightiella incisa* Gooding) from the Florida Keys with notes on its habitat. **Northeast Gulf Science** 7: 119-120.

BOOKS: *Molecular Ecology of Biofilms*. Robert J.C. McLean, Alan W. Decho (Eds.). 2002. Horizon Press, Norfolk, UK. ISBN 1-898496-46-8, 123 pp.

Book Reviews: 2001. *Benthic Boundary Layer: transport processes and Biogeochemistry*, edited by

- BP Boudreau, BB Jørgensen. 404 p. Oxford Univ. Press.
1997. *Viral Ecology*, edited by C.J. Hurst. CRC Press, Boca Raton.
1994. *Structure, cellular synthesis and assemble of biopolymers*, (S. Case, Ed.).
SpringerVerlag. 294 p. (Rev. publ: 1994. *J. Exper.Mar.Biol.Ecol.* 173: 155-159.

Proposal Reviewer: National Science Foundation (NSF);
National Institute of Environmental Health Sciences (NIEHS);
National Ocean Atmospheric Administration (NOAA);
The Swiss National Science Foundation;
Natural Sciences and Engineering Research Council of Canada;
Petroleum Research Fund, (Amer. Chem. Soc., Wash. DC);
The Natural Environment Research Council (NERC), U.K.;
US Department of Agriculture (USDA);
Water Environment Research Foundation (WERF);
Research Enhancement Program, San Francisco Bay/Delta;
Sea Grant (SC, California, Michigan, Virginia, Maryland, Hawaii);

PATENTS:

1. **2024.** Methods for the amelioration of oil toxicity and stimulation of bacterial oil degradation. Approved: US Patent No. 12,103,880-B2;
2. **2018.** Divisional Patent: Anion-paired cationic Metallocene-containing compounds and polymers as Antimicrobial Agents. Approved: US Patent No. 9,872,917
3. **2016.** Anion-paired cationic Metallocene-containing compounds and polymers as Antimicrobial Agents. Approved: US Patent No. 9,402,394.
4. **2016.** Rosin-derived cationic compounds and polymers. Approved: US Patent No. 9,357,775.
5. **2015.** High-throughput *in vitro* translation (cell-lysate based) assay for detecting quorum sensing signals. Approved: US Patent No. 8,932,807.
6. **2015.** Cyclodextrin Functionalized Nanoparticles for Quenching Bacterial Communication. Approved: US Patent No. 10,717,788
7. **2014.** Divisional Patent: Rosin-derived cationic compounds and polymers. Approved: US Patent No. 8,901,254;
8. **2013.** Rosin-derived cationic compounds and polymers and their methods of preparation. Approved: US Patent No. 8,604,128.

KEYNOTE ADDRESSES

2021. **Decho, AW.** KEYNOTE: *Why have microbial mats persisted through Geologic time: Evidence from present day.* M-FED Annual Conference, held Museum National d'Histoire Naturelle, Paris, **FRANCE**. Oct 12-16.
2018. **Decho, AW.** KEYNOTE. *Attacking Bacterial Pathogens using Nanoparticle-based Approaches: Steps and Hurdles.* EuroSciCon 6th International Conference on Antibiotics, Antimicrobials & Resistance, held Edinburgh, **SCOTLAND** October 11-12.
2018. **Decho, AW.** KEYNOTE: *The Biofilm: Efficient, Adaptable & Structured.* 19th International Conference on Marine Corrosion and Fouling. Melbourne, FL.
2008. **Decho, AW.,** Przekop, K.M., Braissant, O.,Gallagher, C. Glunk, C. ,Dupraz, C. & Visscher, P.T. KEYNOTE: *An emerging framework for understanding Marine Stromatolite Formation.* International Kalkowsky- Symposium on the "Geobiology of Stromatolites"

- celebrating the 100th Anniversary of their Discovery, Göttingen, **GERMANY**, Oct 4-11, 2008.
2008. **Decho, AW**. KEYNOTE: *Biopolymer-induced mineralization and its impact on material/soil properties*. 1st International Conference on BioGeoCivil Engineering (BGCE), held June 23-25. Delft, **THE NETHERLANDS**

INVITED SPEAKER

2024. **Decho AW** (INVITED). *Plastisphere & Microbial Biofilms: Colonization and Transport Vehicle for Pathogens In Oceans*. 4th Global Conference on Polymers, Plastics and composites. Held July 11-14, at Paris, **FRANCE**.
2024. **Decho AW**. *Glass Polymers and Biofilm Resiliency to Desiccation*. International Union of Microbiological Societies (IUMS). Florence, **ITALY**, held Oct 23-25.
2022. **Decho AW** and R Prescott (INVITED). Desiccation Resiliency of Natural Biofilms enhanced by EPS matrix-Evidence of organic glass formation. Amer. Society Microbiology Biofilms Conference, Charlotte, NC (November 2022). Host: Clay Fuqua
2017. **Decho AW**. (Platform INVITED) Biofilms as a natural antibiotic-resistant bastion for bacteria. SOCIETY OF ENVIRONMENTAL TOXICOLOGY AND CHEMISTRY (SETAC) Annual Meeting. Session: Development of Microbial Environmental Resistance. Minneapolis, MN. (Nov).
2014. **Decho AW**. (INVITED) Unique and baffling aspects of the Natural EPS matrix in situ. IWA Conference (The Perfect Slime – nature, properties, regulation and dynamics of EPS. Held University of Duisburg-Essen, **GERMANY**, held Sept 10-14, 2014. Host: H.-C. Flemming.
2014. **Decho AW**. (INVITED) *Margalef Lecture*, University of Vienna, **AUSTRIA**. “Biofilms remixed: Microbial Mats and Stromatolites” (May 2014) Host: T. Battin.
2014. **Decho AW**. (INVITED). *Natural biofilms of stromatolites and other microbial mats*. International Conference on Biofilm6, held Vienna, **AUSTRIA** (May 2014); Host: T. Battin
2012. **Decho, AW**, B. Lau, K. Ikuma. (INVITED). When Nanoparticles enter the ‘house of bacteria’- Role of biofilms in fate and transport. Sustainable Nanotechnology Organization (SNO) 1st Annual Conference, held Arlington, VA. (Nov. 2011) Host: B. Karn
2011. **Decho, AW**. (INVITED). *Quorum sensing in nature: What happens out there?* Gordon Research Conference on Geobiology of Precambrian Earth, held Jan 30-Feb 4, Ventura, CA. Host: N. Noffke
2010. **Decho, AW**. (INVITED) Biofilms and quorum sensing in marine systems: An overview. ASLO-AGU Annual Meeting, held Portland OR Feb 2010.
2008. **Decho AW**. (INVITED) *EPS: An elusive refugia for bacteria in water systems*. Trans Atlantic Water Symposium, held Baton Rouge, LA. Mar 29-Apr 2, 2008. Host: Prof. Dr. H.-C. Flemming
2004. **Decho AW**. (INVITED) ‘The *Division Q Lecture*’ American Soc. Microbiol. (ASM) Ann. Conf., ‘*Cyanobacterial EPS in Marine Systems*’. New Orleans, LA. (May) Host: Dr. Keith Cooksey.
2003. **Decho AW**. (INVITED) American Society of Limnology and Oceanography (ASLO) Annual Conference, Salt Lake City, UT. Feb. 2003
2001. **Decho AW**. (INVITED) Microbial Mat Symposium II. “Fossil and Recent Biofilms”. held in Oldenburg Universitat, **GERMANY**. Host: Prof. Dr. W.E. Krumbein
2000. **Decho AW**. (INVITED) International Water Association(IWA)- Specialist Conference on Biofilms, Universitat Duisburg-Essen, **GERMANY**, The Environmental Significance of Microbial Biofilms, held (Sept.). Host: Prof. Dr. H.-C. Flemming
1999. **Decho AW**. (INVITED) University of Plymouth, Plymouth, **ENGLAND**, European Community International Conference On Intertidal Mudflats, properties and processes. *Microbial Biofilms in Intertidal Systems* (April) Host: Prof. Keith Dyer.
1999. **Decho AW**. (INVITED) American Society of Limnology & Oceanography (ASLO). Symposium on Microbial Biofilms and Mucilage in Ocean Processes. ‘*New Approaches in the*

- Characterization of Microbial EPS* (February)
1996. **Decho AW.** (INVITED) American Society of Microbiology (ASM) Annual Conference, New Orleans, LA. *Sorption of Molecules to Hydrophilic Extracellular Polymers: Do Hydrophobic Microzones Exist?*. Host: Dr. John Lawrence.
1996. **Decho AW.** (INVITED) American Society of Microbiology Conference on MICROBIAL BIOFILMS, Snowbird, Utah. *Partitioning of Extracellular Enzyme Activities within Microbial Biofilms.* Host: Dr. J. W. Costerton.
1993. **Decho AW.** (INVITED) *Assessing the role of exopolymers in microbial mats: techniques.*" NATO Advanced Research Workshop on Microbial Mats, Arcachon, **FRANCE.**
1993. **Decho AW.** (INVITED) International Symposium on Sediment Stabilization, Univ. Oldenburg, **GERMANY;** "*Extracellular Polymeric Substances and Sediment Stabilization.*" Host: Prof. Dr. W.E. Krumbein.
1993. **Decho AW.** (INVITED) NOAA Symposium: Sustainable Development in the Southeastern Coastal Zone. Myrtle Beach, South Carolina; "*Factors Influencing the Bioavailability of metals in bivalve food*". Host: Dr. F. John Vernberg
1992. **Decho AW.** (INVITED) International-Workshop on "Mucilage Phenomenon of the Adriatic Sea, held Cesenatico, **ITALY;** "*Microscale Parameters influencing the degradation of exopolymer mucilages.*" Host: Dr. RA Vollenweider.

SEMINARS

2024. **Decho, AW** (Seminar). *Plastics, the Plasticsphere and Pathogen Rafting.* University of Mississippi, Dept. Biology, Oxford, MI Host. Rebecca Prescott
2014. **Decho, AW.** (Seminar). *Natural biofilms of stromatolites and other microbial mats.* University of Vienna, Dept. Biology, held Vienna, **AUSTRIA** (May 2014); Host: T. Battin
2013. **Decho, AW.** (SEMINAR) Herriot Watt University, Dept. Biology, **SCOTLAND** '*Bacterial Biofilms and Applications of Engineered Nanoparticles to their study and control.* (May 2013)
2013. **Decho, AW.** (SEMINAR) Scottish Oceans Institute (SOI), Univ. St. Andrews, **SCOTLAND.** '*Roles of Bacterial Biofilms and Chemical Communication in Coastal Sediment Systems: Insights into Sediment Stabilization.* Host: Dr. David Paterson
2012. **Decho, AW.** (SEMINAR) Old Dominion Univ., Dept Earth & Ocean Sciences. *EPS Matrices of Biofilms: An elusive & emergent property of natural microbes.* Host: Dr. Nora Noffke
2010. **Decho, AW.** (SEMINAR): Department of Biology, Indiana University. *What happens out there?: Quorum sensing under natural conditions.* Host: Dr. W. Clay Fuqua
2009. **Decho, AW.** (SEMINAR). Department of Geology, Baylor University. '*Biofilms: a sorptive sponge for environmental release of nanoparticles.* Host: Dr. Boris Lau.
2007. **Decho AW.** (SEMINAR) College of Charleston (SC), Dept. Biology. "*Chemical Communication in Microbial Mats: A biogeochemical Challenge.* Dec. 2007 Host: Dr. I. DeBuran
2006. **Decho AW.** (SEMINAR) National Institutes of Health (NIH), Washington, SC (BioPhysics Group). '*Role of Bacterial Biofilms and EPS in Health and Disease*'.
2005. **Decho AW.** (SEMINAR) Agouron Institute, La Jolla, CA. "*The Illusive EPS Matrix of Bacteria.* Host : Dr. Mel Simon (Caltech)
2004. **Decho AW.** (SEMINAR) Duquesne University, Department of Biology, Pittsburgh, PA.: '*Probing the Earth's Earliest Biofilms*' Host: Dr. John Stolz.
2004. **Decho AW.** (SEMINAR) Old Dominion University, Department of Oceanography, Norfolk, VA.: '*Marine Stromatolites and the earth's earliest biofilms*', Host: Dr. Nora Noffke
1992. **Decho AW.** (SEMINAR) Monterey Bay Aquarium Research Institute, Monterey, CA. "*Exopolymers of microbial origin: source of DOM and POM.*" Host: Dr. Jim Barry.
1991. **Decho AW.** (SEMINAR) Michigan Technological Univ., Dept. Biol. Sci. SEMINAR: "*Role(s) of microbial exopolymers in ocean processes.*" Host: Dr. Stephen Bowen.

1989. **Decho AW.** (SEMINAR) University of California-Santa Cruz, Dept. Appl. Sci. "Exopolymers of bacteria: Source of labile carbon for deposit-feeders." *Host:* Dr. Ken Bruland
1989. **Decho AW.** (SEMINAR) University of Connecticut, Dept. Marine Sci., Avery Point. "Role(s) of microbial exopolymers in ocean processes." *Host:* Dr. Robert Whitlatch
1988. **Decho AW.** (SEMINAR) Queensland Univ., Dept. Microbiol., Brisbane, **AUSTRALIA.** "Uptake and utilization of bacterial exopolymer by a harpacticoid copepod".
1988. **Decho AW.** (SEMINAR) CSIRO Darling-Murray Freshwater Research Laboratory, Albury, N.S.W., **AUSTRALIA.** "Uptake/utilization of bacterial exopolymer by harpacticoid copepods".

CONFERENCE/SESSION ORGANIZER

NATIONAL CONFERENCE Organizer.

2005. **CONFERENCE ORGANIZING CHAIR,** AMERICAN SOCIETY OF LIMNOLOGY OCEANOGRAPHY (ASLO) International Conference, held Savannah, GA. July 2004

SESSION Organizer

- 2005. Session Co-Organizer,** EUROPEAN GEOSCIENCES UNION (EGU) Annual Meeting, (Session Organizer: T. Battin, H. Lapin-Scott, A. Decho, M. Wagner), Vienna, AUSTRIA, April 2005.
- 2001 Session Co-Organizer:** Special Session on "BioGeochemistry of Marine Stromatolites: A 3 Billion Year Old Ecosystem; AMERICAN SOCIETY OF LIMNOLOGY AND OCEANOGRAPHY (ASLO), Annual Meeting, Santa Fe, NM (February); w/ co-organizer: Dr. P. Visscher.
- 2000 Session Co-Organizer:** International Specialist Conference on "Extracellular Polymeric Substances", sponsored by the INTERNATIONAL WATER ASSOCIATION (IWA), held Mülheim, GERMANY (September); Co-Org.: H.-C. Flemming; T. Neu, A. Leis.
- 1998 Session Co-Organizer:** Special Session on "Microbial Polymers in Marine Systems" at AMER. SOC LIMNOLOGY OCEANOGRAPHY (ASLO) Ann. Meeting, Santa Fe, NM (Feb) w/co-org.: Dr. A. Alldredge.
- 1995 Session Co-Organizer:** Special Session on "Microbial Biofilms" at AMERICAN SOCIETY OF MICROBIOLOGY (ASM) Annual Meeting, New Orleans, LA (May); w/co-organizer: Dr. J. Lawrence.

CONFERENCE PRESENTATIONS *(excludes INVITED and KEYNOTES listed above)*

- Leighton RE, KE Correa Vélez, L Xiong, AG. Creech, KP. Amirichetty, GK. Anderson, G Cai, RS Norman, **AW. Decho.** 2023. *Vibrio parahaemolyticus* and *Vibrio vulnificus* Colonization on Plastics Influenced by Temperature and Strain Variability. American Society Microbiology- Annual Mtg
- Prescott RD, PJ Boston, DE Northup, MN Spilde, **AW Decho.** 2023. Survival in extreme environments through cross-domain cooperation: Is quorum sensing essential to bacterial-fungal interactions in lava caves and beyond? European Astrobiology Institute, Annual Mtg., held Azores Is.
- Leighton R, KE Correa Velez, L Xiong, K Amirichetty, G Anderson, G Cai, RS Norman, **AW Decho.** 2023. *Vibrio vulnificus* and *Vibrio parahaemolyticus* in vitro colonization on plastics influenced by temperature and strain variability. Oceans and Human Health Annual Mtg., Fort Myers, FL. May
- Norman RS, Decho AW, Scott GI. 2020. Climate change and marine pathogens: Environmentally driven changes in *Vibrio vulnificus* and *Vibrio parahaemolyticus* gene expression and pathogenicity. NSF- Oceans and Human Hlth (OHH) Program Mtg.
- Al-Ali M, Chandler S, **Decho AW**, Benicewicz BC. 2019. Designing "Sweet-Nanoparticles" as a novel strategy to combat antibiotic-resistant bacteria. AMERICAN CHEMICAL SOCIETY (ACS) Annual Mtg., Boston, MA.
- Prescott R, 'Iwakeli'i Tong E, Lo C-C, Gleanser C, Donachie SP, Chain PSG, Chan Y, Esibill D, **Decho AW**, Davenport K, Johnson S, Lee H. 2019. *O na Hoku no na kiu o ka lani:* Bridging Genomics Research and Culture-based Science Education through Astrobiology in Hawai'i. Oxford Nanopore Conference,

London, U.K., Feb.

- Chanda A, Gummadidala, P.M., Chen, YP, Beauchesne, Miller K, Mitra C, Banaszek N, Velez-Martinez M, Moeller PDR, Ferry JL, **Decho AW**. 2016. Aflatoxin response metabolites from *Vibrio gazogenes*: a novel system of generation of aflatoxin inhibitors. *WMFmeetsIUPAC*, Winnipeg, Canada.
- Ganewatta MS, Chen YP, Miller K, **Decho AW**, Tang C. 2014. Sustainable antimicrobial coatings from resin acids. AMERICAN CHEMICAL SOCIETY (ACS) Annual Mtg. Vol. 247.
- Wang L, Chen YP, Cole M, Zhen Y, Benicewicz BC, **Decho AW**. 2014. Synthesis and characterization of water-soluble multi-functionalized magnetic nanoparticles via RAFT polymerization. AMERICAN CHEMICAL SOCIETY (ACS) Annual Mtg. Vol. 247.
- Ikuma K, A Madden, **AW Decho**, B Lau. 2014. Nanoparticle-Biofilm interactions at the interface: Importance of surface physicochemical characteristics. IWA PS2014 SPECIALIST CONFERENCE: *Advances in Particle Science and Separation: from Nanoscale and Beyond*. Sapporo, Japan.
- Wang L, Chen YP, **Decho AW**, Benicewicz BC. 2013. Preparation of dye-labeled poly(methacrylic acid) grafted silica nanoparticles for antimicrobial applications. USC Oakwood Products Poster Competition, Columbia, SC, February 22, 2013. PUBLISHED;
- Wang L, Chen YP, **Decho AW**, Benicewicz BC. 2013. Synthesis and characterization of dye-labeled poly(methacrylic acid) grafted silica nanoparticles. 2nd ACS POLY/PMSE Student Chapter (USC) Industry Panel Presentation, Columbia, SC, August 16th, 2013. PUBLISHED;
- Wang L, Miller KP, Viswanath A, Benicewicz BC, **Decho AW**. 2012. Nanoparticle-based antimicrobial paint. The Proving Ground Entrepreneurial Challenge, Columbia, SC, November 13, 2012. PUBLISHED;
- Wang L, Cash BM, Chen YP, **Decho AW**, Benicewicz BC. 2012. Synthesis and characterization of dye-labeled poly(methacrylic acid) grafted silica nanoparticles for drug delivery applications. 244th AMERICAN CHEMICAL SOCIETY (ACS) National Meeting, Philadelphia, PA, August 19-23, 2012. PUBLISHED;
- Wang L, Cash BM, Chen YP, **Decho AW**, Benicewicz BC. 2012. Synthesis and Characterization of Dye-Labeled Carboxylic Acid Coated Silica Nanoparticles for Drug Delivery Applications. IUPAC Macro2012, Blacksburg, VA, 6/24-28/12. PUBLISHED;
- Ferry JL, RL Frey, **AW Decho**. 2010. *Effects of hydroxyl radical mediated oxidation on N-acylhomoserine lactones used in microbial signaling: rates, products, and effects on signaling activity*. AMERICAN CHEMICAL SOCIETY (ACS) Annual Meeting, Boston, MA. August 2010. Abst. #26. PUBL.
- Ferry JL, RL Frey, JM Burns, TJ Shaw, CJ Murphy, P Sisco, **AW Decho**, GT Chandler, P Pennington, M Fulton. 2010. *Effects of surface charge on the partitioning of gold nanorods in saline estuarine mesocosms*. AMERICAN CHEMICAL SOCIETY (ACS) Annual Meeting, Boston, MA. Aug. Abst. #164.
- Frey R, Pellechia PJ, **Decho AW**, Ferry JL. 2010. Effects of pH, temperature, and salinity on microbial communication: speciation of autoinducer-2 in the aquatic environment. AMERICAN CHEMICAL SOCIETY (ACS) Annual Mtg. Vol. 239.
- Afroz, AN, Q Zaib, **AW Decho**, NB Saleh. 2010. *Role of nanoparticle geometry on nano-biointeractions: a quest to separate physics from chemistry*. AMERICAN CHEMICAL SOCIETY (ACS) Annual Meeting, Boston, MA. Aug. Abst. #131. PUBLISHED
- Visscher, PT, C Dupraz, **AW Decho**, BP Burns. 2010. *Mechanisms of biomineralization in hypersaline and open marine microbial mats*. INTERNATIONAL ASSOCIATION OF SEDIMENTOLOGY (IAS), 18th International Sedimentological Congress Meeting, Mendoza, Spain (Abstr.#561) PUBL.
- Decho, AW**. et. al. *Using surface-functionalized nanoparticles as antibiotic delivery vehicles (ADVs) for penetrating biofilms: A sorptive sponge for nanoparticle accumulation under natural conditions*. 5th INTERNATIONAL CONFERENCE on ENVIRONMENTAL EFFECTS OF NANOPARTICLES, held August 22-26, 2010. Clemson, SC. PUBLISHED
- Decho, AW**. 2010. Overview of Biofilms, EPS, and quorum sensing and their links to sediment biogeochemical processes. AMERICAN SOCIETY LIMNOLOGY OCEANOGRAPHY (ASLO)-AGU Annual Meeting, held Portland, OR. February.

- Decho, AW.** *The biofilm way of life in marine systems.* AMERICAN SOCIETY OF MICROBIOLOGY (ASM) -SC Annual Chapter Meeting, held Charleston, SC. April.
- Frey R, **Decho AW**, Ferry JL. 2009. Correlation of the common water quality parameters pH, nitrate, phosphate, iron, total carbonate, and natural organic matter with multifactorial photodegradation. AMERICAN CHEMICAL SOCIETY (ACS) Annual Mtg abstract, vol. 237.
- Decho, AW.** *Biofilms: A sorptive sponge for nanoparticle accumulation under natural conditions.* 4th INTERNATIONAL CONFERENCE on ENVIRONMENTAL EFFECTS OF NANOPARTICLES, held September 6-9, 2009. Vienna, AUSTRIA.
- Shaw TJ, Ferry JL, Hexel CR, Craig PS, Murphy CJ, Patrick S, Frey R, Chandler GT, **Decho AW**, Pennington P, Fulton M. 2008. ENVR 32- Analysis of Au nanorods in samples from an estuarine mesocosm study. AMERICAN CHEMICAL SOCIETY (ACS) Annual Mtg, Vol 235.
- Ferry JL, Craig PS, Frey R, Hexel CR, Shaw TJ, Murphy CJ, Patrick S, **Decho AW**, Chandler GT, Pennington P, Fulton M. 2008. ENVR 52- Partitioning of Au nanorods in saline estuarine mesocosms. AMERICAN CHEMICAL SOCIETY (ACS) Annual Mtg, Vol 235.
- Frey, RL, PJ Pellechia, **AW Decho**, JL Ferry. 2008. *Stability and molecular fate of DPD/Autoinducer 2 as a function of environmental factors pH, boric acid, temperature, and salinity.* AMERICAN CHEMICAL SOCIETY (ACS) Annual Meeting, held Boston, MA.
- Dupraz C, Braissant O, Gallagher K, Glunk C, **Decho AW**, Visscher PT. 2008. The role of EPS properties and turnover in carbonate mineral nucleation. Joint Mtg of GEOLOGICAL SOCIETY OF AMERICA (GSA) and Soil Science Society of America.
- Decho, AW**, PT Visscher, RS Norman, J Ferry, PL Ferguson. 2008. *Geochemical Challenges to quorum sensing in natural microbial mats.* NASA ABSCICOM (Astrobiology) Meeting, Session 18, held Santa Clara Convention Ctr. Santa Clara, CA April 14-18, 2008.
- Bey, B., E. Biers, **AW Decho**, RS Norman. 2008. *Identifying quorum sensing activities in a hypersaline mat assemblage using a functional metagenomics approach.* AMERICAN SOCIETY OF MICROBIOLOGY (ASM) Annual Meeting, Philadelphia, PA. N-225.
- Bey, B., E. Biers, M. Uyaguari, **AW Decho**, RS Norman. *An Efficient methods for extraction of high molecular weight DNA from microbial mats.* AMERICAN SOCIETY OF MICROBIOLOGY (ASM) Annual Meeting. Philadelphia, PA. (#Q549). 2008.
- Visscher PT, Dupraz C, Braissant O, **Decho AW**. 2008. *The Role of EPS Properties and Turnover in Carbonate Mineral Nucleation.* AGU (Abstr. # 150670) Session: Biofilms and Biomineralization: Evidence from ancient and modern systems. AMERICAN GEOPHYSICAL UNION (AGU) Ann. Mtg. Houston, TX. Oct.
- Braissant O, Gallagher KL, **Decho AW**, Przekop KM, Glunk C, Dupraz C, Visscher PT. 2008. *Characteristics and Turnover of Exopolymeric Substances (EPS) in a hypersaline microbial mat: Implication for preservation of microbial biosignatures in the rock record.* 8th EUROPEAN WORKSHOP ON ASTROBIOLOGY (EANA), held Neuchatel, SWITZERLAND.
- Braissant O, **Decho AW**, Przekop KM, Gallagher KL, Glunk C, Dupraz C, Visscher PT. 2008. *Turnover of natural exopolymeric substances: Interactions with calcium in lithifying microbial mats.* INTERNATIONAL Kalkowsky SYMPOSIUM: GEOBIOLOGY OF STROMATOLITES, Goetingen, GERMANY.
- Visscher, PT, LK Baumgartner, C Dupraz, O Braissant, KM Przekop, JF Stolz, JR Spear, **AW Decho**. 2008. *Biogeochemistry and diversity of open marine stromatolites and hypersaline lithifying microbial mats.* NASA ABSCICOM (Astrobiology) Meeting, Session 18, held Santa Clara Convention Ctr. Santa Clara, CA, April 14-18.
- Dupraz C, Braissant O, Glunk C, **Decho AW**, Visscher PT. 2008. *Influence of the EPS matrix on microbialite formation.* NASA ABSCICOM (Astrobiology) Meeting, Session 18, Santa Clara, CA, April.
- Frey R, **Decho AW**, Ferry JL. 2008. *Correlation of the common water quality parameters pH, nitrate, phosphate, iron, total carbonate, and natural organic matter with the multifactorial photodegradation of n-octanoyl-dl-homoserine lactone.* Abst. #12343525. AMERICAN CHEMICAL

- SOCIETY (ACS) Annual Meeting, March.
- Norman RS, Bey B, Visscher PT, **Decho AW**. 2008. *A functional genomic approach to understanding quorum sensing in the delta-proteobacteria, Desulfovibrio sp.* AMERICAN SOCIETY OF MICROBIOLOGY (ASM) Annual Meeting, Boston, MA. (#52 A)
- Pearman WF, Angel SM, **Decho AW**. 2007. *Surface enhanced Raman spectroscopy (SERS) for in-situ measurements of signaling molecules (e.g. autoinducers) relevant to bacterial chemical communication- quorum sensing.* 34th Annual Conference of Federation of Analytical Chemistry and Spectroscopy (FACSS), Memphis, TN. October.
- Decho AW**, Norman RS, Visscher PT, Ferguson LP, Ferry J. 2007. *Quorum sensing in natural microbial mats: a biogeochemical challenge.* AMERICAN SOCIETY OF MICROBIOLOGY (ASM) Special Conference on 'Cell-to-Cell Communication in Bacteria", October, Austin, TX.
- Decho AW**, Visscher PT, Norman RS, Kawaguchi T. 2007. *Microspatial Patterns and Chemical Communication between Bacteria in Microbial Mats.* AMERICAN SOCIETY OF MICROBIOLOGY (ASM) Special Conference on Microbial Biofilms, Quebec, Canada. March.
- Braissant O, Visscher PT, **Decho AW**. 2007. *Exopolymeric substances in hypersaline Microbial mats: their potential role in calcium carbonate mineral precipitation.* GEOLOGICAL SOCIETY OF AMERICA (GSA) Annual Meeting, Denver, CO October, Session 126: Perspectives in Redox Geochemistry and Microbial Processes (Vol. 39, No. 6)
- Braissant O, Przekop K, **Decho AW**, Verrecchia E, Dupraz C, Glunk C, Gallagher K, Visscher PT. 2007. *Sulfate reducing bacteria exopolymers: their influence on calcium carbonate mineral precipitation.* NASA ASTROBIOLOGY CONFERENCE (March) Vol. 6 (1): 247-285.
- Norman RS, Bey B, Visscher PT, **Decho AW**. 2007. *A functional genomic approach to understanding quorum sensing in the Delta Proteobacteria, Desulfovibrio sp.* AMERICAN SOCIETY OF MICROBIOLOGY (ASM) Special Conference -Microbial Biofilms, Quebec, Canada, Oct.
- Decho AW**. 2007. *Quorum sensing in natural microbial mats: a biogeochemical challenge.* AMERICAN SOCIETY OF MICROBIOLOGY (ASM) Special Conference on 'Cell-to-Cell Communication in Bacteria", October, Austin, TX.
- Decho AW**. 2007. *Microspatial Patterns and Chemical Communication between Bacteria in Microbial Mats.* AMERICAN SOCIETY OF MICROBIOLOGY (ASM) - Special Conference on Microbial Biofilms, Quebec, Canada.
- Braissant O, Przekop KM, **Decho AW**, Verrecchia EP, Dupraz C, Glunk C, Gallagher K, Visscher PT. 2006. *Exopolymers from sulfate-reducers: their role in precipitation of carbonate minerals,* Societe Geologique de France, Societe Francaise de mineralogie et crystallographie, Joint Earth Sciences Meeting, Dijon, France.
- Gallagher K, Przekop KM, Baumgartner LK, Carson E, Blackshear A, Braissant O, **Decho AW**, Vasconcelos C, McKenzie JA, Visscher PT. 2006. *Lithification in Microbial mats: The Role of the Sulfur Cycle.* CONFERENCE ON ASTROBIOLOGY SCIENCE. Washington, DC.
- Visscher PT, Dupraz C, Reid RP, Stolz JF, **Decho AW**. 2004. *Decoupling of coupled element cycles in early microbial ecosystems. Origin of biogenic signatures in the rock record? Workshop on 'Microbialites and microbial communities in sedimentary systems'.* Paris, France, (September). Published abstract in "*Microbialithes et communautes microbienne dans les systems sedimentaires.* G. Camoin and P Gautret (eds). Association des Sedimentologistes Francais (ASF), Societe Geologie de France, Paris, France, pp. 109-110 (ISBN0990-3925).
- Decho AW**. 2004. *Marine Stromatolites, the earth's earliest biofilms.* AMERICAN SOC. OF MICROBIOLOGY (ASM) Special Conference on 'Biofilms", Victoria, BC (November)
- Petrisor AI, Kawaguchi T, **Decho AW**. 2003. An introduction to bacterial geography. Proceed. 27th Ann. Congress of American-Romanian Academy of Arts and Sciences mtg.
- Reid RP; Visscher PT, **Decho AW**, Marinelli R, Stolz J. 2003. *Biocomplexity of Marine Stromatolites:*

- Biogeochemical Cycling, Microbial Population Dynamics, and Mineral Formation in a Three Billion Year Old Ecosystem*. Biocomplexity PI meeting, Washington DC, Sept.
- Kawaguchi T, **Decho AW**. 2001. *The role of extracellular polymeric substances on CaCO₃ precipitation in marine stromatolites*. (Abstract # 768) AMERICAN SOCIETY OF LIMNOLOGY & OCEANOGRAPHY (ASLO), Albuquerque, NM. February.
- Hoskins DL, Stancyk SE, **Decho AW**, Lewis VP, Baynes J. 2001. Digestion of biofilm carbohydrates by the deposit-feeding brittlestar *Amphipholis gracillima* (Stimpson)(Ophiuroidea: Amphiuridae). Proceedings of the 10th International Conference, Dunedin, UK.
- Decho AW**, Kawaguchi T. 2000. *"Microbial Processes and Calcification in Marine Stromatolites: The Earth's Earliest Biofilms"* AMERICAN SOCIETY OF MICROBIOLOGY (ASM), Special Conference on Biofilms, Big Sky, Montana (July). (POSTER)
- Decho AW**, Kawaguchi T. 2000. *"In Situ Microspatial Imaging of Bacteria and EPS within Marine Sediments"* AMERICAN SOCIETY OF MICROBIOLOGY (ASM), Special Conference on Biofilms, held at Big Sky, Montana (July). (POSTER)
- Stolz J, Visscher PT, **Decho AW**, Reid RP. 2000. *"Community Structure in a Modern Marine Stromatolite"* INTERNATIONAL SYMPOSIUM ON PHOTOTROPHIC PROKARYOTES, Barcelona, SPAIN (August).
- Noble, PA., W Johnson, C Roper, M Kelly, M Hoffman, M Dantzer, S Thieben, ST Lindsay, H Dang, CR Lovell, **AW Decho**, J Tour, M Fletcher. 1999. Abstract #11434 Q-65; 98th AMERICAN SOCIETY OF MICROBIOLOGY (ASM), Atlanta, GA. (POSTER)
- Reid, RP, B. Bebout, **AW Decho**, IW MacIntyre, H. Paerl, J. Pinckney, L. Prufert-Bebout, T. Steppe, P. Visscher. 1999. *"Microbial Heaven in a Fringing Reef Complex, Highborne Cay, Bahamas*. (POSTER).
- Schlekat, C.E., K.E. Wommack, **AW Decho**, G.T. Chandler. 1998. *Phylogenetic Characterization of an Estuarine Bacterial isolate and Compositional Analysis of its metal binding EPS*. AMERICAN SOCIETY OF MICROBIOLOGY (ASM) Annual Meeting, Miami, FL. [POSTER]
- Varlik, B., **AW Decho**. 1998. *Effects of Polymer-transition metal interactions on the survival and bioavailability of pathogenic marine and freshwater bacteria in estuaries*. SOCIETY OF ENVIRONMENTAL TOXICOL. CHEM. (SETAC) Annual Mtg., Charlotte, NC. [POSTER]
- Schlekat, C.E., **AW. Decho**, G.T. Chandler. 1998. *Modelling uptake of Ag, Cd, and Zn by the estuarine amphipod *Leptocheirus plumulosus* from multiple uptake routes*. SOCIETY OF ENVIRONMENTAL TOXICOLOGY AND CHEMISTRY (SETAC) Annual meeting, Charlotte, NC. [POSTER]
- Decho, AW**. 1997. *Localization of extracellular enzyme activities within microbial biofilms*. AMERICAN SOCIETY OF LIMNOLOGY AND OCEANOGRAPHY (ASLO) Annual Meeting. Santa Fe, NM (February).
- Schlekat, C.E., **A.W. Decho**, G.T. Chandler. 1997. *Role of microbial extracellular polymeric substances in the bioavailability of metals in surficial estuarine sediments*. INTERNATIONAL MEETING of SOCIETY OF ENVIRONMENTAL TOXICOLOGY CHEMISTRY (SETAC). Amsterdam, THE NETHERLANDS. April 1997.
- Reid, R.P., P. Visscher, J. Pinckney, H. Paerl, **AW. Decho**, B. Bebout, M. Feldmann, I. MacIntyre. 1997. *Microbial-mediated lithification in Bahamian Stromatolites*. INTERNATIONAL ASSOCIATION OF SEDIMENTOLOGISTS.- Workshop of Microbial Mediation of Carbonate Diagenesis. Chichilianne, FRANCE (Sept. 97)
- Reid, R.P., P. Visscher, J. Pinckney, H. Paerl, **AW. Decho**, B. Bebout, M. Feldmann, I. MacIntyre. 1997. *A geomicrobiological investigation of modern marine stromatolites at Highborne Cay, Bahamas*. INTERNATIONAL GEOLOGICAL CORRELATION PROGRAM (IGCP) 380: Microbialites- Processes and Products, Cracow, POLAND. (Sept)
- Reid, R.P., J. Pinckney, P. Visscher, H. Paerl, **AW. Decho**, B. Bebout, M. Feldmann, I. MacIntyre. 1997. *Microbial-mediated lithification of cyanobacterial mats forming modern marine stromatolites in the Bahamas*. 97th Annual Meeting, AMERICAN SOCIETY OF MICROBIOLOGY (ASM), Miami, FL (Session N-77, p. 394)
- Reid, R.P., B. Bebout, H. Paerl, **AW. Decho**, M. Feldmann, I. MacIntyre, H. Paerl, , J. Pinckney, P. Visscher.

1997. *Formation of lithified micritic laminae in modern marine stromatolites: a geomicrobiological investigation.* GEOLOGICAL SOCIETY OF AMERICA Annual Meeting.

Decho AW. 1995. *Modifications in digestive processing strategies to reduce toxic trace metal uptake in a marine bivalve.* Benthic Ecology Meetings, Rutgers University, NJ.

Schlekat CE, **Decho AW**, Chandler GT. 1995. Sorption of organic compounds to microbial extracellular polymers: potential vector for bioaccumulation of sediment-associated contaminants. SETAC (Society of Environ. Toxicol. Chem) Mtg. Pensacola, FL.

Decho AW, Luoma SN. 1994. Modification in digestive processing strategies to reduce toxic trace metal uptake in a marine bivalve. SETAC (Society of Environ. Toxicol. Chem) Mtg. Pensacola, FL.

Decho AW. 1993. *"Microbial Extracellular Polymers in Benthic Food Webs."* American Soc. of Microbiology Annual Meeting, Atlanta, GA.

Luoma SN, Fisher N, **Decho AW**, Griscom S, Brown C, Wang W, 1993. Bioavailability of cadmium from particulate sources to bivalves. 14th Annual Mtg (SETAC)- Ecological Risk Assessment.

Decho AW, Luoma SN. 1992. Geopolymers (humic and fulvic acids): sink trophic transfer-vehicle for metals to bivalves. 13th Annual Mtg Society for Environ. Toxicology and Chemistry (SETAC). Seattle, WA.

Decho AW, Luoma SN. 1990. Mucus-exopolymer utilization by two bivalves with different feeding strategies. American Geophysical Union Annual Mtg. EOS Transactions 71, CONF-9002174.

VISITING RESEARCHER

2014 Pacific Northwest National Laboratories (PNNL), Richland, Washington (2 wks)

2013 Scottish Oceans Institute (SOI), University of St. Andrews, **SCOTLAND** (4 mos)

1995-2012 Bahamas (Caribbean Marine Research Center (CMRC) at Lee Stocking Island; Highborne Cay; San Salvador Island) to conduct NSF-sponsored research on marine microbial communities.

1996. Digital Instruments, Inc., Santa Barbara, CA to conduct biofilm research using atomic-force microscopy. (2 wks)

1991 Catalina Island Marine Science Center, (Univ. Southern California) for Intensive 6-week techniques course called 'Molecular Biology & Biochemistry of Marine Organisms', sponsored by Office of Naval Research and USC. (6 wks)

1989 US Geological Survey, Menlo Park, CA. Post-doctoral work on bioavailability of metals to marine animals. (5 yrs)

1987-88 CSIRO Marine Laboratories, Brisbane, AUSTRALIA. Post-doctoral work to examine trophic availability of microbial EPS to marine consumer animals. (1 yr)

1986 University of Alaska-Juneau. Research associate for Dr. T. Shirley for study entitled "Association of Primary Productivity & Recruitment in Subarctic Ecosystems" (APPRISE) investigating benthic-pelagic coupling processes. (2 mo)

1983 Marine Biological Laboratory, Woods Hole, Mass., Summer fellowship for graduate 'Microbial Ecology course and research at MBL. (10 wks)

1980 Duke University Marine Laboratory. Summer course "Marine Ecology", and research via H. Roy Wilson Fellowship (Ohio University) (10 wks)

1978 Bermuda Biological Station for Research. Summer course in Oceanic Island Ecology via scholarship Award (Eastern Conn. State Univ.) (3 wks)

MEMBER:

2014-present AAAS (American Association for Advancement of Science)

2013-present ASPPH (Association of Schools and Programs of Public Health)

2013-present APHA (American Public Health Association)

2008-present. Australian Centre for Astrobiology- Assoc. Member; nominated by Dr. Brendan Burns (Australian Centre for Astrobiol., Univ. New South Wales, Sydney, Australia)

SCHOLARLY SERVICES

POSTDOCTORAL-ASSOCIATES / STUDENTS

▪ POST-DOCTORAL RESEARCHERS

Dr. Swagatam Barman, NIH-Post-Doctoral Researcher. Topic: Overcoming Antibiotic Resistant Infections.(2021-2025)

Dr. Rebecca Prescott, NSF/NASA Post-Doctoral Fellow. Topic: QS-mediated changes in gene expression in mats of extreme environments. (2018-2023)

Dr. Amjed Alabresm, Post-Doctoral Researcher. Topic: Nanoparticle influences of Antibiotic Resistance.

Dr. Kenneth Browne, Topic: Experimental analysis of waterborne chemical cues as agents regulating larval settlement. (co-advise w/ R.K. Zimmer-Faust) (1995-96)

▪ Honors College Undergraduate Student Theses: [In-Progress](#)

Ms. Nikki Yost, Potential control of dental caries due to *Streptococcus mutans* biofilms.

Ms. Grace Margulies, Formation of biological glass by natural bacteria to survive and revive under anhydrophilic conditions.

▪ Honors College Undergraduate Student Theses: [Completed](#)

Ms. Karishma Amirecchety, Thesis title: Triple Threat: Interplay between *Vibrio vulnificus* , Climate Change and Microfiber Pollution. Defense: April 19, 2025

Ms. Srestha Sammadar, Thesis title: Effect of Grape seed extract against the formation of *Staphylococcus aureus* Biofilms in a Clinical Setting. Defense: April 21, 2025.

Ms. Gracie Anderson, Thesis title: Cis-2-Decenoic Acid Modulation of *Vibrio vulnificus* biofilms. Defense: April 18, 2025

Ms. Sarah Parker, Thesis title: Role of biofilms in the bioremediation of metal-contaminated water sources. Defense: April 17, 2023.

Ms Grace Smith, Thesis Title: *Lessons Learned for the American Public Health Response: A Critical Analysis of the H1N1 vs. COVID-19 Federal Response*. Defense: February 20, 2021

Ms. Tessa Cox, Thesis Title: *Postnatal maternal fecal microbiota transplantation (FMT) as an effective practice for establishing gut microbiome health in babies born through cesarean section (CS)*. Defense: April 26, 2021.

Mr. Adam Hoyt, *USC Honors College*, Senior Thesis Title: Effects of microscale pH changes on the Sorption of metals to exopolymers in marine microbial biofilms. Defense: July 1997.

DISSERTATIONS- COMPLETED:

Dr. Ryan Leighton, Dissertation title: *Vibrio sp. interactions with ocean micro- and nano-plastics as a vehicle for disease transfer*. Defense: 2023.

Dr. Kristen Miller, Dissertation Title: *Bacterial communication and its role as a target for nanoparticle-based antimicrobial therapy*. Defense: 2015

Ds. Adriana Bejarano Dissertation Title: *Establishing a link between pesticide bioavailability and toxicological response in marine animals*. Defense:2004

Dr. Alexandru Petrisor Dissertation Title: *Quantifying multiple scales of spatial variability in biofilms using GIS/Image analysis approaches*. Defense:2004

Dr. Paul Pennington, Dissertation Title: *The replicated modular estuarine mesocosm: assessing direct and indirect effects on pesticide exposures*. Defense: 2002.

(*Recipient of Best Dissertation Award – Department of Environmental Health Sciences2002)

Dr. Christian Schlekat, Dissertation Title: Assimilation of metals by sediment-ingesting invertebrates: Effects of natural sediment qualities and intrinsic metal characteristics, (*Funded by E.P.A.' STARR FELLOWSHIP Program').Defense: 1998.

(* Recipient of "BEST DISSERTATION AWARD- SCHOOL OF PUBLIC HEALTH 1998.

Dr. Dionne Hoskins, (Co-Chair), Dissertation Title: Utilization of microbial exopolymers by a deposit-feeding brittlestar: trophic and toxicological implications. Defense: 1999.

STUDENT -MASTERS THESES/PRACTICA:

Mr. Amjed Alabresm. Thesis Title: Diagnosis of viral and bacterial infections. (Defense: May 2018)

Ms. Shonda Jones Thesis Title: Uptake of Nanoparticles by *Vibrio gazogenes*.
(Defense: November 12, 2015)

Mr. Brian Nevius. Thesis Title: Sorption of charged nanoparticles to aquatic biofilm systems.
(Defense: April 2009)

Ms. Tamara Kay. Thesis Title: Quorum sensing in the bacterial biofilms of marine stromatolites.
(Defense: July 2007)

Ms. Erin Beckman. Thesis Title: A Quantum-Dot Approach to sensitive pathogen detection on marine copepods.
(Defense: Nov 2006)

Ms. Katrina Grosso. Thesis Title: Assessment of antibiotic resistant *E. coli* bacteria in a National Estuarine Research Reserve Sanctuary (NERRS)- North Inlet, SC. Defense: 11/03

Mr. J. Darius Soltes, Thesis Title: Quantitative characterization of natural microbial exopolymers (EPS) and associated spectroscopic properties. Defense: October 7, 1998

Ms. Monica Hoffman, Thesis Title: Proteolytic enzymes secreted by the marine bacterium *Pseudomonas atlantica*.
Defense: November 12, 2001

Mr. Allen Southerland, Thesis Title: Physiological responses of estuarine phytoplankton to photo-induced fluoranthene toxicity. Defense: March 15, 2001.

Mr. Robert Salters, Thesis Title: The Phenotypic Expression of Alpha-1 Integrin Deletion in Neonatal Rat Myocytes", conducted in conjunction with USC School of Medicine.
Defense: March 17, 2000.

Ms. Rebecca Ellin, Thesis Title: Planktonic Abundance and Dispersal of the Oyster Parasite *Perkinsus marinus*".
Defense: June 30, 2000.

Ms. Pavani Vasikarla, MPH-Practicum. Practicum Title : Evaluation of Section 319 (NPS-Non Point Source) Projects for Pollutant Load Reductions. Practicum Exam : Nov 22, 2004.

INTERNATIONAL VISITING- GRADUATE/ UNDERGRADUATE STUDENT THESES RESEARCH

(*Thesis research conducted in Decho lab*)

2016 **Ms. Indra Monsees**. Visiting Senior Thesis for University of Duisburg/Essen, **GERMANY**.
Bachelor Thesis: Alteration of antibiotic production by a bacterium through exposure to novel stressors. (4 mo.)

2015 **Mr. Santhosh Kumar** Visiting Master's Thesis, University of Duisburg/Essen, **GERMANY**.
Bachelor Thesis: The role of archaeal EPS in the formation of microbial glass and the preservation of active chemical signals during desiccation. (6 mo.)

2012-13 **Mr. Hendrik Noll**, Visiting Senior Thesis for University of Duisburg/Essen, **GERMANY**.
Bachelor Thesis: The role of bacterial extracellular vesicles in preservation of active chemical signals and extracellular enzymes during desiccation. (4 mo.)

2012. **Ms. Tanja Knipping**, Visiting Senior Thesis for University of Duisburg/Essen, **GERMANY**.
Bachelor Thesis: The role of archaeal EPS in the formation of microbial glass and the preservation of active chemical signals during desiccation. (4 mo.)

2010. **Ms Stefanie Sand**, Visiting Senior Thesis for University of Duisburg/Essen, **GERMANY**.
Bachelor Thesis: Isolation of bacteria and archaea from hypersaline ponds (Bahamas):
Understanding potential interactions through signaling and antibiotics. (4 mo)
2010. **Mr. Maik Szendy**, Visiting Senior Thesis for University of Duisburg/Essen, **GERMANY**.
Bachelor Thesis: Nanoparticle Stimulation of Antibiotic production by bacteria. (4 mo)
2009. **Ms. Cornelia Rudolph**: Visiting Senior Thesis for University of Duisburg/Essen, **GERMANY**.
Bachelor Thesis: Quorum sensing in Archaea. (4 mo)
2007. **Ms. Falicia Goh**, Visiting Ph.D. student from University of New South Wales, **AUSTRALIA**.
Funded by prestigious *NASA Planetary Biology Fellowship!* (3 mo.)
2001. **Ms. Anneli Widenfalk**, Visiting PhD Student from University of Uppsala, **SWEDEN**.
Ms. Widenfalk conducted research project addressing *Bioavailability of pesticides to marine mollusks*". (5 mo)
1996. **Ms. Henriette Selck**, Roskilde University, **DENMARK**. As a Master's candidate, she
conducted research in my laboratory on bioavailability of metals to marine animals. (5 mo)

UNDERGRADUATES (USC):

- Ms. Nikki Yost** USC Honors College, Dept. Biology, 2025-present
Ms. Grace Margulies USC Honors College, Dept. Biology, 2024-present
Ms. Sarah Parker USC Honors College, Dept. Biology, 2022-2023
Ms. Karishma Amirecchetty USC Honors College, Dept. Chemistry Biochemistry, 2022-2025
Ms. Gracie Anderson, USC Honors College, Dept. Chemistry Biochemistry, 2022-2025
Mr. Donovan Salva USC Honors College, Arnold School of Public Health.
Ms. Tessa Cox, USC Honors College, Arnold School of Public Health. 2020- 2021;
Ms. Grace Smith, USC Honors College, Arnold School of Public Health. 2019-2021;
Mr. Pranav Patel, USC Honors College, and Dept. Chemistry Biochemistry, 2018-2020;
Mr. Steven Glenn, USC Honors College, and Dept. Chemistry Biochemistry, *Title*: Isolation of novel antibiotics and complexation to nanoparticles. 2013.
Mr. Jacob Nelson, Department of Chemistry and Biochemistry, *Title*: Isolation of Microbial Glass from Microbial Mat EPS. 2010.
Mr. Adam Hoyt, USC Honors College, *Senior Thesis Title*: Effects of microscale pH changes on the Sorption of metals to exopolymers in marine microbial biofilms. *Defense*: July 1997.
Mr. Max Habicht- laboratory assistance experience

DISSERTATION COMMITTEE MEMBERSHIP -some examples (not all-inclusive)

Amjed Alabresm	(ENHS)		
Ashley Allen	(Chem/Biochem)		
Maan Alali	(Chem/Biochem)		
Benjamin Bey	(ENHS)		
Erin Beckman	(ENHS)		
Eva Priesner	(ENHS)		
Dipro Bose	(ENHS)		
Beth Bair	(ENHS)		
Justina Burns	(Chem/Biochem)		
Arelis Colon	(Chem/Biochem)		
Yujin Cha	(Chem/Biochem)		
Samantha Case	(ENHS)		
Maggie Carson	(ENHS)		
Xiaoxuan Fan	(ENHS)		
Andreas Figaroa	(ENHS)		
Rebecca Frey	(Chem/Biochem)		
Mitra Shiran Ganewatta	(Chem/Biochem)		
Miguel Goni	(ENHS)		
Willem Goedkoop	(Univ Uppsala, Sweden)		
Phanni Gummadidala	(ENHS)		
Christie Handel	(Univ. Hawaii)		
Mariam Heegi	(ENHS)		
Cassie Horton	(ENHS)		
Kaoru Ikuma	(Baylor Univ)		
Mirza Isanovic	(ENHS)		
Madeline Meyer	(ENHS)		
Samantha McNeal	(ENHS)		
Alali Maan	(Chem/Biochem)		
Chandrani Mitra	(ENHS)		
Tannaz Mohammadi	(Biol)		
Mayomi Omebeyinje	(ENHS)		
Mohammed Othman	(ENHS)		
Parasmani Pageni	(Chem/Biochem)		
Henry Patel	(ENHS)		
Shannon Pipes	(Biol)		
Swanandi Pote	(Chem/Biochem)	Paul Vecchiarelli	(ENHS)
Courtney Wise	(Chem/Biochem)	Karlen Velez	(ENHS)
Fan Wang	(Chem Biochem)	Courtney Wise	(Chem/Biochem)
Ashley Womer	(Chem/Biochem)	Sahar Pourhoseini	(ENHS)
Sam Putnam	(Chem/Biochem)	Anisur Rahman	(Chem/Biochem)
Lola Renauer	(ENHS)	Jesmin Rubaiya	(ENHS)
Mithun Sidker	(ENHS)	Avula Sravanthi	(Chem/Biochem)
Lei Wang	(Chem/Biochem)	Courtney Sullivan	(Chem/Biochem)
Megan Whisonant	(Chem/Biochem)		

SERVICE: Some examples of Service (not all-inclusive).

University

- *VPR Committee on University Research Core Facilities. 2022-present*
- *VPR Committee on University Research Space Utilization. 2022-present*
- *Provost's Dean Search Committee for Library Science. 2022-2023.*
- *Provost Committee on University Research Space Utilization. 2020-2022*
- *Provost Committee Evaluation of ASPH Dean – 2013-2014*
- *CHAIR, Search Committee for USC SMART-STATE Professorship in Environ NanoScience and Risk Assessment; (2010-2011)*
- *CHAIR, USC Faculty Grievance Committee; (2007-2010)*
- *Member, 'USC Educational Foundation Research Award for Health Sciences' Committee 2010-2013.*
- *Marine Sciences Associate Faculty and Graduate Committee; (1995-2007)*
- *School of the Environment Faculty Search Committee; (2010)*
- *ASPH Dean Search Committee; (2010)*

Arnold School of Public Health (ASPH)

- *CHAIR, Search Committee for ASSOCIATE DEAN for FACULTY AFFAIRS (2025)*
- *ASSOCIATE DEAN for RESEARCH, Oct 2014-2023;*
- *CHAIR, Research Advisory Committee (2014-2023).*
- *CHAIR, Tenure and Promotions Committee (2007-2010);*
- *CHAIR, ASPH Research Awards;*
- *Member Tenure and Promotions Committee (1998-present)*
- *Curriculum Committee Member;*
- *Research Faculty Evaluation Committee;*
- *Teaching Peer-Reviewer;*
- *Post-Tenure Review Committee;*
- *Information Technology and Resources Committee (2009-2012);*

Department

- *Search Committee, for ENHS Chair (2025)*
- *Director of Graduate Studies ENHS; (2011-2013)*
- *Associate Chair ENHS; (2010-2013)*
- *CHAIR, New Faculty Search Committee 1, (2008-2009)*
- *CHAIR, New Faculty Search Committee 2, (2010-2011)*
- *CHAIR, New Faculty Search Committee 3, (2011-2012)*
- *CHAIR, New Faculty Search Committee 4, (2011-2012)*