



Dr. Ing. Astrid Anne-Marie Gärdes

Leibniz Center for Tropical Marine Research (ZMT)

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## Contact Information

Date/Place of Birth 17. April 1981, Singapore

Office Leibniz Center for Tropical Marine Reserach (ZMT)  
Fahrenheitstraße 6  
28359 Bremen

Phone +49 421 238 0064  
Fax +49 421 238 0030  
Email [astrid.gaerdes@leibniz-zmt.de](mailto:astrid.gaerdes@leibniz-zmt.de)

Home: In den Weiden 7  
28357 Bremen

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## Professional Experience

2017 Ranking 2. place in the procedure of the W2 professor appointment at Hochschule Bremen, Germany

2015 eligibility status at University of Bremen to promote doctoral certificates

08/12-ongoing **Research Group Leader** "Tropical Marine Microbiology" at Leibniz Center for Tropical Marine Ecology ZMT Bremen, Germany

05/16-12/18 **PI and Project Coordinator**, BMBF funded project, "Diversity of microorganisms in both natural and aquaculture tropical seaweed systems: biotechnology potential for sustainable development"

2015 parental leave (8 month)

10/15 - 12/18 **PI and Project Coordinator**, Leibniz Competition Women for academic leadership positions "Aquaculture practice in tropical coastal ecosystems- Understanding ecological and socio-economic consequences (ACUTE)"

01/11 - 07/12 **Postdoctoral research scientist** with Dr. Carl Carrano at San Diego State University, USA  
Topic: "*Algae-Bacteria Interactions and their role in oceanic biochemical cycles*" with emphasis on the oceanic iron cycle

06/10 - 12/10 **Postdoctoral research scientist** with Prof. Dr. Matthias Ullrich at Jacobs University Bremen, Germany  
Topic: "*Aminoacid analyses during algae-bacteria interaction*"

04/07 – 05/10 **Phd student** with "special distinction" in the section Life Sciences at Jacobs University Bremen  
Title of thesis "*A bilateral model system for the molecular investigation of diatom-bacteria interactions*"

01/05 - 09/05 **Research Associate** at Max Planck Institute for Marine Microbiology, Bremen, Germany  
Project title: "*Overexpression of the Magnetosomeprotein mamJ*"

08/03 - 01/04 **Research Internship** at Australian Centre for Necotrophic Fungal Pathogens (ACNFP), Perth, Australia  
Project title: "*Characterization of CAP 20 gene expression in Stagnosdora nodorum*"

## List of running projects

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- 2018-2020 Tropical Macroalgae Bio-based Products for Use in Natural Cosmetics; Industry Merck GmbH funded project, **CO-PI 300.359 Euro**
- 2015-2019 Aquaculture practice in tropical coastal ecosystems- Understanding ecological and socio-economic consequences (ACUTE) SAW-2015-ZMT-4, Leibniz Association; **PI 989.280 Euro**
- 2016-2019 Diversity of microorganisms in both natural and aquaculture tropical seaweed systems: biotechnology potential for sustainable development. Bioeconomy International 2014 BMBF, **PI 201.175 Euro**
- 2015-2018 Leibniz Research Alliance INFECTIONS'21 Transmission Control of Infections in the 1st Century; Leibniz Association **Co-PI 20.000 Euro**
- 2015-2018 The Mauritanian Shelf as Endmember of Eutrophication – Matter Fluxes, Trophic Networks, Productivity, DFG; **CO-PI Meteor Cruise**
- 2017 Response of coastal and pelagic marine ecosystems to environmental stressors in the Persian Gulf, DFG; **Group-PI 43.650 Euro**
- 2013-2016 Bacterial impact on aggregate formation under different future ocean scenarios; A Mesocosm approach; ZMT funding **PI 110.000 Euro**
- 2012-2015 Seasonal changes in bacterial communities in tropical coastal ecosystems subjected to anthropogenic stress; ZMT funding **PI 110.000 Euro**
- 2011-2018 Research Group “Tropical Marine Ecology”; Leibniz Association **PI 350.000 Euro**
- 2011-2015 GeoMICS - *Microbial Interactions across Chemical Surveys, Characterizing Biological Function Across a Persistent Oceanographic “Hotspot” in the North East Pacific.*
- 2019-2015 *MARUM Center for Environmental Sciences- University of Bremen Cluster of Excellence “The Ocean Floor-Earth’s Uncharted Interface 2019-2025. pending*

## Awards

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- 2004 DECHEMA Award of the Max Buchner Research Foundation for diploma thesis
- 2005 MSc. full scholarship, Member of the International Max Planck Research School of Marine Microbiology, Bremen
- 2008 Travel grant for Gordon Research Conferences 'Marine Microbes', German Research Foundation (DFG)
- 2009 Awarded for 'Microbial Oceanography: From Genomes to Biomes', funded by the Center for Microbial Oceanography, Research and Education (C-MORE) and the Agouron Institute
- 2010 Awarded for doctoral thesis with “*special distinction*” from Jacobs University Bremen
- 2012 Awarded Featured Article in *Marine Ecology Progress Series*
- 2012 Granted a Junior Research Group at the Leibniz Center for Tropical Marine Research
- 2013 Selected to attend the 63<sup>rd</sup> *Lindau Nobel Laureate Meeting* in Chemistry as young researcher
- 2014 Granted for Leibniz Competition, Women in academic leadership positions
- 2014 Nominated for The German Young Academy of Scientist (Die Junge Akademie)
- 2016 Awarded Leibniz Mentoring Program, 1 year funding

## Education

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- 05/2010 **Ph.D in Marine Microbiology** with ‘*special distinction*’ at Jacobs University Bremen, Germany and Member of the International Max Planck Research School of Marine Microbiology (MarMic) Bremen, Germany  
Title of thesis “*A bilateral model system for the molecular investigation of diatom-bacteria interactions*”
- 10/05 - 03/07 **M.Sc. in Marine Microbiology** at the Max Planck Research School in Bremen, Germany at University of Bremen, Germany  
Title of thesis: “*Algae-Bacteria Interactions*”.
- 09/00 - 01/05 **Diplom Engineer (Dipl.-Ing.) in Biotechnology (FH)**  
Student of Biotechnology/Chemical Engineering at the University of Applied Science Oldenburg/Ostfriesland/Wilhelmshaven in Emden  
Title of thesis: “*Establishment of the Cre/loxP recombinase-mediated generation of unmarked gene deletion in Magnetospirillum gryphiswaldense*”.

### Teaching Experience

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2015-ongoing	<b>Lecturer</b> in FB2 Biologie/Chemistry at the University of Bremen, undergraduate (1 SWS) and graduate courses (2 SWS)
04/13-ongoing	<b>Faculty member and Lecturer</b> at the International Max Planck Research School for Marine Microbiology MarMic, Bremen, Germany
09/13-ongoing	Lecturer at the International MSc Studies in Aquatic Tropical Ecology ISATEC, Bremen, Germany
03/08 - 07/09	<b>Teaching assistant</b> at Max Planck Institute for Marine Microbiology Bremen, Germany
08/2007	<b>Teaching Instructor</b> at Alfred Wegener Institute for Polar and Marine Research, Sylt, Germany
08/07 – 5/2010	<b>Teaching assistant</b> at Jacobs University Bremen, Germany <i>Over 4 years teaching assistance in undergraduate “Microbiology lab course” using general and molecular microbiology techniques.</i>

### Supervision of Students

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PhD thesis Hauke Kegler, main supervisor, completed September 2016  
PhD thesis Anny Cardenás, main supervisor, completed January 2017, *summa cum laude*  
PhD thesis Loan Doan Than, main supervisor, started August 2014  
PhD thesis Yustian Rovi Alfiansah, main supervisor, started Dezember 2014  
PhD thesis Jennifer Bachmann, main supervisor, started Dezember 2015  
PhD thesis Inken Hahnke, main supervisor, started Dezember 2015  
PhD thesis Febrina Desrianti, project supervisor, started January 2016  
PhD thesis Khaled Abdallah, co-supervisor, completed August 2016  
PhD thesis Judith Klatt, Examiner, completed August 2015  
PhD thesis Amanda Ford, Panel supervisor, completed September 2017  
PhD thesis Holger Kühnhold, Panel supervisor, completed November 2017  
PhD thesis Marleen Stuhr, Panel supervisor, completed January 2018  
PhD thesis Dini Adyasari, Panel supervisor, started May 2015  
PhD thesis Veronika Will, panel supervisor, started April 2015  
PhD thesis Paula Senff, Panel supervisor, started March 2017

MSc thesis Folasade Mosunmola Adeboyejo, main supervisor completed June 2013  
MSc thesis Anny Cardenas, main supervisor, completed March 2014  
MSc thesis Veronika Will, co-supervisor, completed March 2015  
MSc thesis Nataly Guevera, main supervisor completed August 2015  
MSc thesis Sandra Erdmann, main supervisor, completed September 2015  
MSc thesis Tabea Heimbach, main supervisor, completed March 2017  
MSc thesis Hannes Reinwald, main supervisor, completed March 2018  
MSc thesis Chyrene Moncado, co- supervisor, completed June 2018  
MSc thesis Asma Al-Nhadi, co-supervisor, started January 2018  
BSc thesis Magdalena Vannek, main supervisor, completed September 2017

### Scientific activities (selection)

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- Co-Organizer of the International Coral Reef Symposium 2015
- Session–Convener ASLO Aquatic Science Meeting 2017, Session 078
- Established the molecular laboratory/ S2 level and Bioinformatic Cluster in 2016 at ZMT
- Member of Zürich Minds, Zürich Minds Foundation
- Main-supervisor of 7 doctoral students, 2 postdocs and 6 Master students since 2013
- Committee member and external reviewer for 8 PhD defenses and 9 MSc theses
- Faculty member of the International Max Planck Research School for Marine Microbiology Bremen

- Member of the International Society for Microbial Ecology (ISME, since 2009), and The German Association for General and Applied Microbiology (VAAM, since 2010)
- Reviewer for journals (selected): Molecular Ecology, Environmental Microbiology, Microbiology Open, PLoS ONE, Frontiers in Microbiology, Biometals and Estuarine and Coastal shelf Research, Aquaculture Research
- External Reviewer for the funding body "Creative Units" in the Excellence Cluster of the University of Bremen

### **Scientific and Public outreach Articles (selected)**

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**Gärdes A.** (2018) „Plastikmüll im Meer Hier zerstören Joghurtbecher gerade ein Riff,, Spiegel Online

**Gärdes A.** (2017) „Korallen mit Karies“ in Süddeutsche Zeitung

**Gärdes A.** (2017) "Schnee im Meer-Weiße Flocken die Tiere ernähren, rieseln unter der Wasseroberfläche in die Tiefe" in Die Kinderstimme

**Gärdes A.** (2017) "Let it snow, let it snow, let it snow: Mikrobiologie und Meeresschnee" Expertenblog Wissenschaftsjahr Meer

**Gärdes A.** (2016) „Aquakultur: Fluch oder Segen“ Expertenblog Wissenschaftsjahr Meere

### **Invited Talks**

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ICBM Kolloquium- Carl von Ossietzky Universität Oldenburg- Institute für Chemie und Biologie der Meere „Biodiversity and lifestyles of free-living and particle-attached bacterioplankton in coastal ecosystems" 2018

Leibniz Research Alliances „Infections `21 Symposium" invited speaker "Occurrence and transport of pathogenic bacteria in open-cage aquaculture of the Caquiputan Channel in the Philippines" 2018

Poppelsdorfer Schloss Biologisches Kolloquium des Zoologischen Forschungsmuseums Bonn, „Dissolved and particulate organic carbon in coral reef ecosystems" 2017

Science Sips Biodiversity, Naturkunde Museum Berlin, Geschmack der Zukunft funded BMBF „Microbial Ecology in Aquaculture Effluents"

Aquatic Science meeting ALSO, Honolulu, Hawaii 2017 Session Chair and Invited Speaker "Intensive nutrient uptake and organic mitigate eutrophication in coral reef ecosystems"

Institute for Natural Products Chemistry, Hanoi, Vietnam Mai 2017 „Biotechnology potential of Seaweed associated microorganisms"

Haus der Wissenschaft Bremen *Wissen um 11*, November 2016 „Klein aber oho: Welche Funktion haben Bakterien im Korallenriff?"

EuroMarine Foresight Symposium Future Biological Carbon Pump *key note speaker*, October 2016 "Particle aggregation in tropical reef ecosystems under local and global stressors"

Max Planck International Research School Symposium, Mai 2016, "Coastal eutrophication controls microbial community composition and particle dynamics in different reef habitats"

Haus der Wissenschaft Bremen, April 2016 "Stille was sind tief – wenn uns Wasser krank macht" accompanied by Deutschland Radio

University of the Philippines, Manila, March 2016 „Aquaculture practices in tropical coastal ecosystems"

Marine Science Station Aqaba, Jordan June 2013, The detection of photoreactive siderophores: Their role in algae-bacteria interactions"

Leibniz Institute for Freshwater Ecology and Inland Fisheries IGB, August 2013 "Microbial interactions relevant in marine aggregate formation"

Jacobs University Bremen, Lecture series MOLIFE, April 2013 "Microbial community responses to nutrient enrichments in tropical coastal ecosystems: The importance of microscale

interactions”

Ocean Science Meeting OSM, Salt Lake City, Utah, United States, February 2012 “The role of photoreactive siderophores in algae-bacteria interactions *in situ*”

Scripps Institution for Oceanography, Ecology Meeting, San Diego, CA, United States, Mai 2011  
“Algae-bacteria interactions: Two model systems and their impact on oceanic biogeochemical cycles”

DGM, Deutsche Gesellschaft für Meeresforschung, Young marine Research: Diversity and Similarities, Hamburg, Germany, June 2010 “Effects of *Marinobacter adhaerens* HP15 on polymer exudation by *Thalassiosira weissflogii* grown at different N:P ratios“

Agouon Institute and the C-Moore Center for Microbial Oceanography: “Microbial Oceanography: Genomes to Biomes”, University of Manoa, Hawaii, United States, June 2009  
“Algae-associated bacteria involved in marine aggregate formation”

SAME-11, Symposium on Aquatic Microbial Ecology, Piran, Slovenia, September 2009, “Molecular analyses of diatom-bacteria interactions”

Alfred Wegener Institute for Polar and Marine Research, Bremerhaven, Germany, June 2007  
“On the way to molecular investigation of algae-bacteria interactions”

### **Workshops and Courses**

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Hanse Wissenschaftskolleg- Nord West Verbund, *Marine “omics” Workshop*, Organizer and Chair, Germany 2018.

Networking Event „Marine Bioeconomy- Science Meets Business“ at Leibniz Centre for Tropical Marine research, Scientific Organizer and Chair, 2018

Workshop “Sweet dreams are made of polysaccharides”, Institute for Chemistry and Biology of the Marine Environment, Germany 2017

EuroMarine Foresight Symposium Future Biological Carbon Pump, Schloss Etelsen, Germany 2016. Invited key note speaker

Workshop// ACUTE on Aquaculture practices in Tropical coastal ecosystems, at the University of the Philippines

Marine Molecular Microbial Ecology course, Max Planck Institute for Marine Microbiology and Biologische Anstalt Helgoland, 2010

POLMAR Course "Probability and Statistics", Alfred-Wegener-Institute for Polar and Marine Reserach, 2010

Agouon Institute and the Center for Microbial Oceanography: Research and Education Summer Course “Microbial Oceanography: Genomes to Biomes” 2009

Workshop// IWOMA International Workshop on Marine Aggregates, Max Planck Institute for Marine Microbiology, Bremen, Germany, December 2006

#### *Soft Skills courses:*

1. Communication Skills, October 2006, Max Planck Institute Bremen, Germany
  2. Self-and Time Management, March 2008, Max Planck Institute Bremen, Germany
  3. Leadership Skills, February 2009, Max Planck Institute Bremen, Germany
  4. Publishing in peer-reviewed journals, February 2010, Alfred Wegener Institute for Polar and Marine research, Bremerhaven, Germany
  5. Scientific leadership and lab management, January 2012, Sanford Consortium, San Diego, CA, United States
  6. Team Leader: Starting with Success, Coaching Colleg Berlin 2013
  7. Special training in communication and conflict management, ISAS, Dortmund 2014
  8. Leibniz Mentoring Program- Women in Academic Leadership positions 2015/2016
  9. Lehrexperiment- Certificates for lecturers at University Bremen, 2018
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## **Cruise experience and Fieldwork**

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Cruise 16.- 22.05.2012// GEOMICS cruise of the vessel RV Thompson, *Characterizing Biological Function Across a Persistent Oceanographic "Hotspot" in the NE Pacific*.

Cruise 22.-30.06.2009// R/V Kilo Moana, *Adventures in the North Pacific Subtropical Gyre Convergence*, dissolved and particulate nutrient distribution and dynamics; biomass distribution, correlation with environmental and biological parameters, primary and bacterial production, export flux, Diversity - taxonomic and functional community structure

Cruise 20.09.-03.10.2006 //VISION cruise of the research vessel *Maria S. Merian*  
*Isolation of particle associated marine bacteria from the Northern Atlantic*  
Onboard- cultivation of particle associated bacteria onboard PCR analyses of EPS genes

Fieldwork 05-06.2017// Nha Trang, Vietnam, Seeweed associated microbial communities-  
biotechnology potential in seaweed aquaculture

Fieldwork 03.2016// Bolinao, Philippines, Aquaculture practice in tropical coastal ecosystems-  
Understanding ecological and socio-economic consequences (ACUTE)

Fieldwork 04.-06.14// Spermonde Archipelago, Sulawesi, Indonesia Carbon flux in tropical coastal  
ecosystems

Fieldwork 11.-12.13// Misool, Raja Ampat, West Papua, Indonesia Coral reef microbial ecology

Fieldwork 01.-04.2013 // Spermonde Archipelago, Sulawesi, Indonesia; Kofiau, Raja Ampat, West  
Papua, Microbial community change along a cross-shelf eutrophication gradient

Fieldwork 10.2008 // Sylt, Wadden Sea, German Bight  
Sampling and incubation of North Sea water for rolling tank experiments, analyzing marine aggregate  
formation

## **References**

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Prof. Dr. Hildegard Westphal

Director of the Leibniz-Center for Tropical Marine Research  
Professor and Chair of the Biogeochemistry and Geology Department  
Leibniz-Center for Tropical Marine Ecology  
Fahrenheitstr 6, 28359 Bremen, Germany  
Phone: (+49) 421 200 238000  
Email: hildegard.westphal@zmt-bremen.de

Prof. Dr. Carl Carrano

Professor and Chair of the Chemistry Department  
Department of Chemistry and Biochemistry  
San Diego State University  
5500 Campanile Avenue  
San Diego, CA 92182-1030  
Phone: (+1) 619 594 5929  
Email: carrano@sciences.sdsu.edu

Prof. Dr. Matthias Ullrich

School of Engineering and Science  
Molecular Microbiology, Research II  
Jacobs University Bremen  
Campus Ring 1, 28759 Bremen, Germany  
Phone: (+49) 421 200 3245  
Email: m.ullrich@jacobs-university.de