
Daniel P. Zitterbart

Physicist (Biophysics)
 Woods Hole Oceanographic Institution (WHOI)
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EDUCATION

2014 – present Habilitation in Physics, University of Erlangen-Nuremberg
 2013 Ph.D. Physics (Dr. rer. nat.), University of Erlangen-Nuremberg
 Thesis: Motion in biological systems
 Advisor: Ben Fabry
 2006 Diploma, Physics, University of Erlangen-Nuremberg

PROFESSIONAL EXPERIENCE

2017 – present Assistant Scientist, Applied Ocean Physics and Engineering, WHOI
 2014 – present Lecturer, Physics Department, University of Erlangen-Nuremberg
 2015 – 2017 Postdoctoral Scholar, Applied Ocean Physics and Engineering, WHOI
 2015 – 2017 Research Scientist (tenured), Ocean Acoustics Lab, Alfred-Wegener-Institute
 2012 – 2015 Postdoctoral Research Fellow, Ocean Acoustics Lab, Alfred-Wegener-Institute
 2009 – 2012 Visiting Scientist, Ocean Acoustics Lab, Alfred-Wegener-Institute
 2009 – 2013 Research Associate, Physics Department, University of Erlangen-Nuremberg
 2007 – 2009 Staff Scientist (Overwinterer), Neumayer Station, Antarctica, Alfred-Wegener-Institute
 2006 Visiting Scientist, Tang Biophysical Laboratory, Physics Department, Brown University
 2006 – 2007 Research Associate, Physics Department, University of Erlangen-Nuremberg
 2001 – 2006 Research Assistant, Physics Department, University of Erlangen-Nuremberg

HONORS AND AWARDS

2019 Office of Naval Research (ONR), Young Investigator Program (YIP) Award
 2018 Woods Hole Oceanographic Institution, Innovative Technology Award
 2018 Woods Hole Oceanographic Institution, Mary Sears Visitor Award
 2017 Woods Hole Oceanographic Institution, Interdisciplinary Award
 2015 Woods Hole Oceanographic Institution, Doherty Postdoctoral Scholarship Award
 2013 Briese-Award for Marine Science for Young Investigators, Leibniz Institute for Baltic Sea Research
 2013 Highlights of 2013 collection, New Journal of Physics for the article “Origin of traveling waves in an emperor penguin huddle”
 2010 Best Poster Prize, International Summer School for Pattern Recognition (ISSPR), British Society of Pattern Recognition
 2007 Ohm prize for best thesis in physics, University of Erlangen-Nuremberg
 2007 American Society of Cell Biology International Student Travel Award
 1999 Valedictorian (Forchheim High School), Award of the German Chemical Industry Foundation

PROFESSIONAL AFFILIATIONS

Acoustical Society of America (ASA), Society of Marine Mammalogy (SMM), German Society for Polar Research (DGP), German Physical Society (DPG), Association for the Sciences of Limnology and Oceanography (ASLO)

ACADEMIC SERVICES

Journal reviews: Proceedings of the National Academy of Sciences, PLOS Computational Biology, Biological Conservation, IEEE Journal of Ocean Engineering, Marine Mammal Science, Marine Ecology Progress

Series, Royal Society Biology Letters, Royal Society Open Sciences, Journal of Physics D: Applied Physics, Marine Technology Society Journal.

Grant reviews: Netherlands Organization for Scientific Research, Rolex Awards, Agence Nationale de la Recherche (ANR)

Editorial: Guest editor for a special issue on “Collective phenomena in living matter”, Journal of Physics D: Applied Physics (JPhysD), IOP Publishing

LICENSES

WHOI Scientific Diver, NAUI Open Water Diver, NAUI Nitrox Diver, Small Boat Skipper (Germany, SBF See & Binnen)

EDUCATIONAL ACTIVITIES: CLASSROOM TEACHING

2015 Lecturer, Department of Physics, University of Erlangen-Nuremberg: Introduction to image processing for life sciences

2006 Teaching Assistant, Department of Physics, University of Erlangen-Nuremberg: General Physics for natural sciences students

EDUCATIONAL ACTIVITIES: STUDENTS SUPERVISED

Ph.D. Students supervision

Alexander Winterl, Physics, FAU Erlangen, (2017 – present)

Sebastian Richter, Physics, FAU Erlangen, (2011 – 2018)

Richard Gerum, Physics, FAU Erlangen, (2013 – 2018)

Karolin Thomisch, 2014 – 2016 (co-supervision on 2 publications with O. Boebel)

MSc. Students supervision

Florian Endres, Physics, FAU Erlangen, (2018)

Mona Seifert, Physics, FAU Erlangen, (2016)

Alexander Winterl, Physics, FAU Erlangen, (2016)

Hanna Michel, Biology, AWI, (2014 – 2015)

Emmeran Sollner, Physics, FAU Erlangen, (2012)

Sebastian Richter, Physics, FAU Erlangen, (2010 – 2011)

BSc. Students supervision

Luise Böttcher, Physics, FAU Erlangen, (2017)

Matthias Späth, Physics, FAU Erlangen, (2014)

Richard Gerum, Physics, FAU Erlangen, (2011), (co-supervision with C. Metzner)

Sebastian Menze, Ocean Engineering, AWI, 2015 – 2016 (co-supervision with O. Boebel)

Staff Supervision

Claus Metzner, Postdoc (2015 – 2016)

Victoria Warren, Research Assistant, 2016 – 2017

Michael Flau, Information Systems Specialist, 2014 – 2017

Student Committees

Ian Jones, Biology, WHOI-MIT Joint Program, PhD, (2018 – 2022, advisor Aran Mooney)

Hannah Kriesell, PhD, University of Strasbourg, (2015 – 2018, advisor Céline Le Bohec)

Carlos Cantergiani Suazo, MSc, Universidad de Concepcion, (2018, advisor Gustavo Chiang)

EDUCATIONAL ACTIVITIES: OUTREACH

2018 STEM in High Schools Lecture, Polar Science in the Big Data Age, Jakob-Grimm-Gymnasium, High School, Germany, 26.04.2018

2018 Discover Ocean Science in Woods Hole, School vacation week, 16.04.2018

2017 WHOI Volunteer Luncheon Lecture, 18.09.2017, WHOI

2017 Ocean Science Journalism Fellowship Lecture, 10.09.2017, WHOI

2017 Army Youth Leadership Lecture, 26.07.2017, WHOI

2017 Science Made Public Lecture Series, 25.07.2017, WHOI

2017 Summer Student Fellow Lecture Series, 28.06.2017, WHOI

- 2014 Adventure Science, physics on whales and penguins in Antarctica, Hanns-Seidel-Highschool
Aschaffenburg, Germany
- 2014 Working with penguins, Elementary School Großensee, Großensee, Germany
- 2012 Working with penguins, Elementary School Großensee, Großensee, Germany
- 2010 Christmas lecture, physics of penguins, Physics Department, University of Erlangen-Nuremberg

EDUCATIONAL ACTIVITIES: SELECTED GENERAL MEDIA PRESENCE

- 2018 Emperor Penguins' Huddles Change in Response to Weather, **EOS**, doi:10.1029/2018EO100699, 12.06.2018
- 2018 I say, I say, I say: What's the difference between a king penguin and liquid?, **The Register**, 05.04.2018
- 2014 Why penguins do the wave, **Nature**, doi:10.1038/505265e, January 2014
- 2014 Crowd Control, **National Geographic**, June 2014
- 2013 Fancy footwork! These huddling penguins do the wave to stay warm, **Los Angeles Times**
- 2013 Start-stop traffic helps penguin huddles grow, **New Scientist**
- 2013 Bring Me Your Huddled Penguins Who Move Like Cars in Heavy Traffic, **Scientific American**
- 2011 In Penguin Huddle, Researchers Find a Wave of Warmth, **New York Times**
- 2011 Penguins Do the Wave to Keep Warm, **National Geographic**, 15.06.2011
- 2011 Penguin Groups Use Physics to Avoid Crush and Keep Warm, **Scientific American**

EXPEDITIONS TO POLAR REGIONS

- 2019 WHALEFOOD1, March 2019, Antarctic Peninsula, Project leader
- 2018 MARE2, Oct-Dec 2018, Neumayer Station III, Antarctica, Project leader
- 2017 MARE1, Nov-Jan 2017, Neumayer Station III, Antarctica, Project leader
- 2016 SPOT3, Nov-Jan 2016, Neumayer Station III, Antarctica, Project leader
- 2014 SPOT2, Jan-Feb 2013/2014, Neumayer Station III, Antarctica, Project leader
- 2013 antaviaSPOT, Oct-Dec 2013, Dumont d'Urville, Antarctica, Project leader
- 2012 SPOT1, Dec-Feb 2012/2013, Neumayer Station III, Antarctica, Project leader
- 2012 ANT 29-2 Nov-Dec 2012, RV Polarstern, Project leader
- 2011 ANT 27-2 Nov-Feb 2010/2011, RV Polarstern, Scientist
- 2010 ANT 26-3 Jan-Apr 2010, RV Polarstern, Project leader
- 2009 ARK 24-1 June-July 2009, RV Polarstern, Scientist
- 2009 ANT-Land 2008/2009, Neumayer Station, Antarctica, Scientist
- 2008 Overwintering 2008, Neumayer Station, Antarctica, Scientist
- 2008 ANT-Land 2007/2008, Neumayer Station, Antarctica, Scientist

FIELDWORK

- 2018 GCA, Feb 2018, Golfo Corcovado Acoustics, Chile, Project leader
- 2018 SAMBAY3, Sep-Oct 2018, San Antonio Bay, Argentina, Chief scientist
- 2018 SBC1, June 2018, St. Cruz Island, California, Project leader
- 2018 GOM1, May 2018, Gulf Of Mexico, RV Pelican, co-PI
- 2017 SAMBAY2, Aug-Oct 2017, San Antonio Bay, Argentina, Chief scientist
- 2017 ESRF2017, Jul-Aug 2017, Great Banks, Argentina, Project leader
- 2017 CGA, Feb-Mar 2017, Chile, Project leader
- 2016 CapeRace 2016, Jun-Jul 2016, Newfoundland, Canada, Project leader
- 2016 ETAW 2016, Jan-Mar 2016, Hawaii, USA, Chief scientist
- 2015 SAMBAY1, Aug-Oct 2015, San Antonio Bay, Argentina, Chief scientist
- 2015 CapeRace 2015, Jun-Jul 2015, Newfoundland, Canada, Project leader
- 2014 ETAW 2014, Jun-Aug 2014, North Stradbroke Island, Australia, Chief scientist

MEETINGS ATTENDED

- Ocean Sciences Meeting 2018, Portland, OR 11-16.02.2018 February 2018
- 174rd Meeting of the Acoustical Society of America, New Orleans, LO December 2017
- 173rd Meeting of the Acoustical Society of America and the 8th Forum Acusticum, Boston, MA July 2017

21 st Biennial Conference on the Biology of Marine Mammals, San Francisco, CA	December 2015
29 th Conference of the European Cetacean Society, Malta	March 2015
Ocean Sciences Meeting 2014, Honolulu, HI	February 2014
SCAR Biology, Barcelona, Spain	July 2013
75th EAGE Conference & Exhibition incorporating SPE EUROPEC 2013, London, UK	June 2013
German Society for Polar Research, Hamburg, Germany	March 2013
Southeast Asian Gateway Evolution, Berlin, Germany	March 2013
International Polar Year, Montreal Science Conference, Montreal, Canada	April 2012
Annual Meeting of the German Physical Society (DPG), Berlin, Germany	March 2011
Society of Exploration Geophysicists (SEG), San Antonio, TX	September 2011
German Ornithological Society (DG-O), Potsdam, Germany	September 2011
Effects of Sound in the Ocean on Marine Mammals, Amsterdam, Netherlands	September 2011
BioSystematics, Berlin, Germany	February 2011
International Polar Year, Oslo Science Conference, Oslo, Norway	June 2010
American Society of Cell Biology Annual Meeting, Washington, DC	December 2007
German Physical Society Spring Meeting, Dresden, Germany	March 2007
Biophysical Society Annual Meeting, Baltimore, MA	March 2007
World Congress of Biomechanics, Munich, Germany	July 2006
Biophysical Society Annual Meeting, Salt Lake City, UT	February 2006

WORKSHOPS ATTENDED

DFO Whale detection technologies meeting (20.-21.02.2018), Montreal, Canada	Feb 2018
Science Communication Class, WHOI	Sept – Dec 2017
ONR Marine Mammal Program Review (20-24.03.2017), Arlington, VA	March 2017
Worldwide state of the right whale, San Francisco, CA	December 2015
Incorporating new mitigation technologies into guidelines for seismic surveys, SF, CA	December 2015
7 th International DCLDE workshop, La Jolla, CA	July 2015
New mitigation methods and evolving acoustic exposure guidelines Workshop, Malta	March 2015
Marine Mammal & Biology Program Review, ONR, Washington D.C.	October 2014
Scoping Workshop on Marine Mammal Detection methodologies, Fornebu, Norway	March 2014
6 th International DCLDE workshop, St. Andrews, UK	July 2013
Collective Motion in Biological Systems, ZiF Workshop, Bochum, Germany	November 2012
International Computer Vision Summer School 2012, Sicily, Italy	July 2012
International Computer Vision Summer School 2011, Sicily, Italy	July 2011
British Computer Society, International Summer School for Pattern Recognition, Plymouth, UK	July 2010

REFEREED PUBLICATIONS (*Indicates a student of DPZ)

- 2018 *Richter S., *Gerum R., *Winterl A., Houstin A., *Seifert M., *Peschel J., Fabry B., Le Bohec C. and Zitterbart D.P. “Phase transitions in huddling emperor penguin colonies,” *Journal of Physics D: Applied Physics* (2018) doi: 10.1088/1361-6463/aabb8e
- 2018 *Gerum R., *Richter S., Fabry B., Nesterova A., Le Bohec C., Bonadonna F., Zitterbart DP. “Structural organization, liquid disorder and jamming in king penguin colonies,” *Journal of Physics D: Applied Physics* 51 164004 (2018) doi: 10.1088/1361-6463/aab46b
- 2018 *Richter S., *Gerum R., Schneider W., Fabry B., Zitterbart DP. “Remote controlled observatories for multiscale behavioral and ecological research on seabird colonies,” *Methods Ecol Evol.* 2018;00:1–11. doi: 10.1111/2041-210X.12971
- 2017 Verfuss UK., Gillespie D., Gordon J., Marques TA., Miller B., Plunkett R., Theriault J., Tollit D., Zitterbart DP., Hubert P., & Thomas L. “Low Visibility real-time marine mammal monitoring techniques review,” 126 (2018) 1–18, doi:10.1016/j.marpolbul.2017.10.034
- 2017 Sorensen S., Treible W., Hsu L., Wang X., Mahoney AR., Zitterbart DP., Kambahmettu C. “Deep Learning for Polar Bear Detection,” In: Sharma P., Bianchi F. (eds) *Image Analysis. SCIA 2017. Lecture Notes in Computer Science*, vol 10269. Springer (peer-reviewed full conference paper).

- 2017 *Menze S., Zitterbart DP., van Opzeeland I., Boebel O. "The influence of sea ice, wind speed and marine mammals on Southern Ocean ambient noise," *R. Soc. open sci.* 4 160370; doi: 10.1098/rsos.160370.
- 2017 Sorensen S., Kolagunda A., Mahoney A., Zitterbart DP., Kambahmettu C. "A Virtual Reality Framework for Multimodal Imagery in Vessels in Polar Regions," *Lecture Notes in Computer Science*, Volume 10133, pp 63-75, doi:10.1007/978-3-319-51814-5_6 (peer-reviewed full conference paper).
- 2016 *Gerum R., *Richter S., Fabry B., Zitterbart DP. "ClickPoints – a scientific image display and analysis tool," *Methods in Ecology and Evolution*, doi:10.1111/2041-210X.12702
- 2016 *Thomisch K., Boebel O., Clark CW., Hagen W., Spiesecke S., Zitterbart DP., Van Opzeeland I. "Spatio-temporal patterns in acoustic presence and distribution of Antarctic blue whales *Balaenoptera musculus intermedia* in the Weddell Sea," *Endang Species Res* 30:239-253 (2016) doi:10.3354/esr00739
- 2016 Cristofari R., Bertorelle G., Ancel A., Benazzo A., Le Maho Y., Ponganis PJ., Stenseth NC., Trathan PN., Whittington JD., Zanetti E., Zitterbart DP., Le Bohec C. & Trucchi E. "Full circumpolar migration ensures evolutionary unity in the emperor penguin," *Nat. Comms.*, 7:11842 doi: 10.1038/ncomms11842
- 2016 Fais A., Lewis TP., Zitterbart DP., Álvarez O., Tejedor A., Aguilar Soto N. "Abundance and Distribution of Sperm Whales in the Canary Islands: Can Sperm Whales in the Archipelago Sustain the Current Level of Ship-Strike Mortalities?" *PLoS ONE* 11(3): e0150660. doi:10.1371/journal.pone.0150660
- 2015 *Thomisch K., Boebel O., Zitterbart DP., Samaran F., Van Parijs S., van Opzeeland I. "Effects of duty cycling of passive acoustic recordings on acoustic presence metrics of baleen whales," *J. Acoust. Soc. Am.* 138, 267 doi:10.1121/1.4922703
- 2014 Bombosch A., Zitterbart DP., van Opzeeland IC., Frickenhaus S., Wisz MS, Boebel O. "Predictive habitat modelling of humpback (*Megaptera novaeangliae*) and Antarctic minke (*Balaenoptera bonaerensis*) whales in the Southern Ocean as a planning tool for seismic surveys," *Deep Sea Research Part I: Oceanographic Research Papers*, Volume 91, Pages 101-114, ISSN 0967-0637.
- 2014 Zitterbart DP., Richter S., Spiekermann G., Behrens LK., Regnery J., Fontes RP, Hänsler T., König-Langlo G., Weller R., Fabry B. "Are environmental factors responsible for changed breeding behaviour in emperor penguins?" *Antarctic Science*, 2014, doi: 10.1017/S0954102014000285
- 2013 *Gerum R., Fabry B., Metzner C., Beaulieu M., Ancel A., Zitterbart DP. "Origin of traveling waves in an emperor penguin huddle," *New Journal of Physics* 15 125022 (17pp) doi:10.1088/1367-2630/15/12/125022
- 2013 Zitterbart DP., Kindermann L., Burkhardt E., Boebel O. "Round-the-Clock Protection of Whales from Underwater Noise by Thermal Imaging," *PLoS ONE* 8(8): e71217. doi:10.1371/journal.pone.0071217 (2013)
- 2012 Weissenberger J. and Zitterbart DP. "Surveillance of Marine Mammals in the Safety Zone around an Air Gun Array with the Help of a 360° Infrared Camera System," *SPE/APPEA International Conference on Health, Safety, and Environment in Oil and Gas Exploration and Production*. doi: 10.2118/158038-MS (peer-reviewed)
- 2011 Zitterbart DP., Wienecke B., Butler JP., Fabry B. "Coordinated movements prevent jamming in an emperor penguin huddle," *PLoS ONE* 6(6): e20260. doi:10.1371/journal.pone.0020260.
- 2010 Mierke CT., Kollmannsberger P., Zitterbart DP., Diez G., Koch TM., Marg S., Ziegler WH., Goldmann WH., Fabry B. "Vinculin facilitates cell invasion into 3D collagen matrices," *J Biol Chem*, 285, 13121-13130. doi: doi: 10.1074/jbc.M109.087171
- 2009 Oakes PW., Morin NA., Patel D., Zitterbart DP., Fabry B., Reichner JS., Tang JX. "Neutrophil morphology and migration are affected by substrate elasticity," *Blood*, doi:10.1182/blood-2008-11-191445.
- 2008 Roesel D., Brabek J., Tolde O., Mierke CT., Zitterbart DP., Raupach C., Bicanova K., Kollmannsberger P., Pankova D., Vesely P., Folk P., Fabry B. "Up-Regulation of Rho/ROCK Signaling in Sarcoma Cells Drives Invasion and Increased Generation of Protrusive Forces," *Mol Cancer Res* 2008 6: 1410-1420 doi: 10.1158/1541-7786.MCR-07-2174
- 2008 Mierke CT., Zitterbart DP., Kollmannsberger P., Raupach C., Schloetzer-Schrehardt U., Goecke T., Behrens J., Fabry B. "Breakdown of barrier function of the endothelium in tumor cell transmigration," *Biophys J* 2008 94: 2832-2846
- 2008 Mierke CT., Kollmannsberger P., Zitterbart DP., Diez G., Smith J., Fabry B., Goldmann WH. "Regulation of cell contractility through vinculin and its domains," *Biophys J* 94:661-670.

- 2007 Metzner C., Raupach C., Zitterbart DP., Fabry B. “Simple model of cytoskeletal fluctuations,” *Phys. Rev. E* 76, 021925 (2007).
- 2007 Raupach C., Zitterbart DP., Mierke CT., Metzner C., Mueller FA., Fabry B. (^contributed equally). “Stress fluctuations and motion of cytoskeletal-bound markers,” *Phys. Rev. E* 76, 011918.

MANUSCRIPTS SUBMITTED

MANUSCRIPTS IN PREPARATION

- Zitterbart DP., Burkhardt E., Bennett L., Cammareri A., Flau M., Kniest E., Lanfredi C., Michel H., Noad M., Owen K., and Boebel O. “Exploring the environmental limits of automatic whale detection,” in prep
- Zitterbart DP. and Lin YT. “Underwater sound source localization using unsynchronized hydrophone arrays,” in manuscript
- *Winterl A., *Richter S. and Zitterbart DP.. micrObs, a low-cost mobile camera observatory for observation of dynamic processes in animal groups. (in manuscript)
- *Gerum R. *Richter S., *Winterl A., Fabry B., Zitterbart DP. “CameraTransform: a Scientific Python Package for Perspective Camera Corrections“, (in manuscript)
- *Warren V.E., Cammareri A., Zitterbart DP. “Perception bias: how automatic detection and classification of southern right whale up calls is influenced by choice of software and parameter values,” (in prep)
- *Warren V.E., Hersh T., Toscani C., Cammareri A., C. Clark., Zitterbart DP. “Multiscale temporal variability of southern right whale call parameters in Patagonia” (in prep)
- Morawetz F., Morawetz K., Zitterbart DP. “Huddle-behavior simulation of emperor penguins,” in manuscript, to be submitted to *New Journal of Physics*
- Zitterbart DP., Cammarei A., Warren V., Hersh T., Harris D., „Scaling the laws of marine mammal density estimation from passive acoustic monitoring using a multimodal density estimation approach“. ” in prep, to be submitted to *Journal of the Acoustical Society of America* Article

PATENTS

- 2015 Zitterbart DP., Kindermann L., Boebel O. “Method for Automated Real-Time Acquisition of Marine Mammals” US Patent US8941728 B2, <http://www.google.com/patents/US8941728>

CONFERENCE PROCEEDINGS/TECHNICAL REPORTS/OTHER PUBLICATIONS

- 2017 *Gerum R. *Richter S., *Winterl A., Fabry B., Zitterbart DP. “CameraTransform: a Scientific Python Package for Perspective Camera Corrections“, arXiv:1712.07438v1, 20.12.2017
- 2017 Verfuss UK., Gillespie D., Gordon J., Marques TA., Miller B., Plunkett R., Theriault J., Tollit D., Zitterbart DP., Hubert P., & Thomas L. “Low Visibility real-time marine mammal monitoring techniques review,” Sound and Marine Life Project Report, SMRUM-OGP2015-002
- 2016 Zitterbart DP., “Towards a mitigation performance metric – thermal imaging detection of whales as a model system,” In: Wright, A.; Robertson, F.; Cosentino, A.M. (eds) 2016: Incorporating new mitigation technologies into guidelines for seismic surveys and other underwater acoustic activities: Producing performance standards. Marine Species and Threats, Department of Conservation, Wellington, New Zealand.
- 2015 Zitterbart DP., and Boebel O. “Exploring the thermal limits of automatic whale detection,” In: New mitigation methods and evolving acoustic exposure guidelines. ECS special publication series, Eds: Andrew J. Wright and Frances C. Robertson, October 2015.
- 2014 Zitterbart DP., Burkhardt E., Bennett L., Cammareri A., Flau M., Kniest E., Lanfredi C., Michel H., Noad M., Owen K., and Boebel O. Field Season Report of “Exploring the Limits of Thermal Automatic Whale detection” Project 2014.
- 2013 Boebel O., Bombosch A., Burkhardt E., Cammereri A., Kindermann L., Richter S., Zitterbart DP. “MAPS: Marine Mammal Perimeter Surveillance,” in The Expedition of the Research Vessel "Polarstern" to the

- Antarctic in 2012/13 (ANT-XXIX/2), edited by Boebel O. p. 99, Reports on Polar and Marine Research, 671, 64 - 70, 2013.
- 2013 van Opzeeland I., Rettig S., Thomisch K., Preis L., Lefering I., Menze S., Zitterbart DP., Monsees M., Boebel O. "Ocean Acoustics," in The Expedition of the Research Vessel "Polarstern" to the Antarctic in 2012/13 (ANT-XXIX/2), edited by Boebel O. p. 99, Reports on Polar and Marine Research, 671, 64 - 70, 2013.
- 2012 Burkhardt E., Lanfredi L., Richter S., Boebel O., Kindermann L., Zitterbart DP. "MAPS: Marine Mammal Perimeter Surveillance," in The Expedition of the Research Vessel "Polarstern" to the Antarctic in 2011/12 (ANT-XXVIII/4), edited by M. Lucassen p. 94, Reports on Polar and Marine Research, 652, 59 - 65, 2012.
- 2012 Richter S., Mueller M., Boebel O., Kindermann L., Zitterbart DP. "MAPS: Marine Mammal Perimeter Surveillance," in The Expedition of the Research Vessel "Polarstern" to the Antarctic in 2011/12 (ANT-XXVIII/2), edited by G. Kattner p. 99, Reports on Polar and Marine Research, 646, 56 – 62.
- 2011 Boebel O., Bombosch A., Kindermann L., Monsees M., Rettig S., Rohardt G., Strothmann O., Zitterbart DP. "Ocean acoustics: moored recorders, PALAOA observatory and field recordings," Reports on Polar and Marine Research, 634, 111 – 119.
- 2011 Boebel O., Bombosch A., Kindermann L., Zitterbart DP. "MAPS: Marine Mammal Perimeter Surveillance," Reports on Polar and Marine Research, 634, 102 – 110.
- 2011 Boebel O., Kindermann L., Monsees M., Richter S., Torres Vega M., Zitterbart DP. "MAPS: Marine Mammal Perimeter Surveillance," Reports on Polar and Marine Research, 628, 69 – 75.
- 2010 Zitterbart DP., Kindermann L., Boebel O. "MAPS: Marine Mammal Perimeter Surveillance," Reports on Polar and Marine Research, 617, 118 – 124.
- 2010 Burkhardt E., Kindermann L., Zitterbart DP., Reimann A. "MAPS: Marine Mammal Perimeter Surveillance," Reports on Polar and Marine Research, 612, 31-34.
- 2006 Mierke CT., Zitterbart DP., Koch T., Fabry B. "Kraftmessung an Zellen in 2D und 3D," BIOSpektrum 04.06:390-391.

INVITED PRESENTATIONS

- 2018 Zitterbart DP., "Real-time remote monitoring of Antarctic species", University of Rhode Island, Rhode Island, 18.10.2018
- 2018 Zitterbart DP., "Thermal imaging for marine mammal detection", DFO Whale Detection Technologies Meeting, Montreal, Canada, 20.02.2018
- 2017 Zitterbart DP., "Polar Science in Big Data Age", Keynote Speaker, AWI Science Meeting, 20.12.2017, Bremerhaven, Germany
- 2017 Collective phenomena in living matter - a case study on emperor penguins, Biology Seminar, Woods Hole Oceanographic Institution, May 11, 2017
- 2017 Zitterbart DP., "Determination of top predator presence, behavior and abundance using computer vision and passive acoustics in marine environments," AOPE Seminar, Woods Hole Oceanographic Institution (WHOI), 08.02.2017.
- 2016 Zitterbart DP., "Whale and penguin monitoring using computer vision and acoustic methods," Hawaii Institute for Marine Biology Seminar, Hawaii University (HU), Honolulu, 01.03.2016.
- 2015 Zitterbart DP., "Towards a mitigation performance metric – Thermal imaging detection of whales as a model system," Workshop on: Incorporating new mitigation technologies into guidelines for seismic surveys and other underwater acoustic activities: Producing performance standards, 21st Biennial Conference on the Biology of Marine Mammals, San Francisco, 13.-18. December 2015.
- 2015 Zitterbart DP., "Whale detection using thermography," Workshop on Mitigation, European Cetacean Society, 29th ECS Conference, Malta, 21.03.2015.
- 2015 Zitterbart DP., "Whale and penguin monitoring using computer vision and acoustic methods in polar oceans," AOPE Seminar, Woods Hole Oceanographic Institution (WHOI), 04.02.2015.
- 2014 Zitterbart DP., "Structure in penguin Colonies," Symposium of the German Ornithological Society, Xanten, 18.10.2014.
- 2014 Zitterbart DP., "Remote Sensing of Whales Using Thermal and Visual Imaging" Ocean and Resources Engineering Seminar, SOEST, University of Hawaii, Hawaii, 26. February 2014.
- 2013 Zitterbart DP., "Physics in penguin Colonies," Physics Colloquium of the Bayreuth University, Bayreuth, Germany, 25. June 2013.

- 2013 Zitterbart DP., “Biodiversity in your palm,” Southeast Asian Gateway Evolution, Berlin, 11-15. March 2013.
- 2012 Zitterbart DP., “Collective motion in penguin colonies,” Collective Motion in Biological Systems: from Data to Models, ZiF Workshop, Bochum, Germany, 05-09. November 2012.
- 2012 Zitterbart DP., “Biodiversity in your palm,” Biodiversity Heritage Library, Finale Event, Berlin, June 2012.
- 2011 Zitterbart DP., “anymals.org, Biodiversity in your pocket,” 4th national meeting on biodiversity. Federal Ministry of Nature Conservation, Berlin, Germany, 8. November 2011.
- 2007 Zitterbart DP., “Intercellular communication and active cytoskeletal processes,” New applications of Traction Microscopy. Division of surgical research, Brown Medical School, Providence, RI, USA, 6. June 2007.

FIRST AUTHOR CONFERENCE ABSTRACTS

- 2018 Zitterbart DP. and Lin YT. “Marine mammal localization using unsynchronized passive acoustic arrays for PAM based species distribution models,” Ocean Science Meeting, Portland, February 2018.
- 2017 Zitterbart DP., Toscani C., Nesterova A., Le Bohec C., Bonadonna F. “Temporal soundscape stability in king penguin colonies”, Acoustical Society of America, Autumn Meeting, New Orleans, December 2017.
- 2017 Zitterbart DP. and Lin YT. “Underwater sound source localization using unsynchronized hydrophone arrays,” Acoustical Society of America, Spring Meeting, Boston, June 2017.
- 2016 Zitterbart DP., Bennet L., Burkhardt E., Cammareri A., Flau M., Kniest H., Lanfredi C., Owen K., Michel H., Noad M., Pacini A., Boebel O. “Exploring the Thermal and Technological Limits of Automatic Whale Detection,” Effects of Noise on Aquatic Life (AN2016), Dublin 2016.
- 2015 Zitterbart DP., Richter S. and Boebel O. “Automatic detection and identification of whales using thermal and visual imaging for autonomous distance sampling surveys, mitigation and collision avoidance purposes,” 21st Biennial Conference on the Biology of Marine Mammals, San Francisco, 13.-18. December 2015.
- 2015 Zitterbart DP., Cammareri A. “SAMBAY: A dedicated study for Density Estimation from Passive Acoustic Monitoring,” 7th International DCLDE workshop, La Jolla, 13-16. July 2015.
- 2015 Zitterbart DP., and Boebel O. “Exploring the Thermal limits of Automatic Whale detection,” 29th Conference of the European Cetacean Society, Malta, 23.-25. March 2015.
- 2014 Zitterbart DP., and Boebel O. “Exploring the Thermal limits of IR-based Automatic Whale detection,” 2014 Marine Mammal & Biology Program Review, Office of Naval Research, Washington D.C. 8-10 October 2014.
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