
Daniel P. Zitterbart

Physicist (Biophysics)
 Woods Hole Oceanographic Institution (WHOI)
 Department of Applied Ocean Physics & Engineering (AOPE)
 Bigelow 213B, MS #11, Woods Hole, MA 02543-1053

Tel: (508) 289-3613
 Fax: (508) 457-2194
 E-mail: dpz@whoi.edu
<http://www.whoi.edu/profile/dzitterbart/>

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

2019 – present Visiting Associate Professor, IROAST, Kumamoto University, Japan
 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
 2019 IEEE Journal of Oceanic Engineering, Outstanding Reviewer
 2018 W.M. Keck Foundation Research Program Grant Award; co-PI, “Real-Time 3D Deep Water Acoustic Telescope”
 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, Journal of the Acoustical Society of America, Ecological Monographs, Remote Sensing.

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

Sofie Meyer, Physics, FAU Erlangen, (2020)

Florian Endres, Physics, FAU Erlangen, (2019)

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)

Sebastian Richter, Postdoc (2018 – present)

Victoria Warren, Research Assistant, 2016 – 2017

Michael Flau, Information Systems Specialist, 2014 – 2017

Student Committees

Daniel Duane, MechE, WHOI-MIT Joint Program, PhD, (2019 – 2023, advisor Prof. Makris)

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

- 2020 Zitterbart DP., "The Emperor Penguin under Climate change in the southern ocean." Norman Bird Sanctuary, Middletwon, RI, 16.01.2020
- 2019 Science Made Public Lecture Series, 23.07.2019, WHOI
- 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 bach, Großensee bach, Germany
- 2012 Working with penguins, Elementary School Großensee bach, Großensee bach, Germany
- 2010 Christmas lecture, physics of penguins, Physics Department, University of Erlangen-Nuremberg

EDUCATIONAL ACTIVITIES: SELECTED GENERAL MEDIA PRESENCE

- 2020 Methods behind the Madness: Ecology at the Poles, **Methods.blog**, 01/30/2020
- 2019 Can Thermal Cameras Prevent Ship Strikes? **Eco Magazine** , 06/18/2019
- 2019 High-tech thermal cameras could protect whales from deadly collisions with ships, **NBC News**, 07/05/2019
- 2019 Infrared Cameras Could Help Ships Avoid Whales, Living Lab, **WCAI Radio Interview**, 08/04/2019
- 2019 Grosses Gewatschel (German), Zeit Leo, **Die Zeit**, 05/16/2019
- 2019 Kuscheln vor den Kameras (German), **Frankfurter Allgemeine Zeitung**, 03/26/2019
- 2019 Blue Planet Live, Tagging Humpback whales in Antarctica, **BBC**, 03/27/2019
- 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, Chief Scientist
- 2018 MARE2, Oct-Dec 2018, Neumayer Station III, Antarctica, Chief scientist
- 2017 MARE1, Nov-Jan 2017, Neumayer Station III, Antarctica, Chief scientist
- 2016 SPOT3, Nov-Jan 2016, Neumayer Station III, Antarctica, Chief scientist
- 2014 SPOT2, Jan-Feb 2013/2014, Neumayer Station III, Antarctica, Chief scientist
- 2013 antaviaSPOT, Oct-Dec 2013, Dumont d'Urville, Antarctica, Project leader
- 2012 SPOT1, Dec-Feb 2012/2013, Neumayer Station III, Antarctica, Chief scientist
- 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

2019 WHALEFOOD-CC, June 2019, Cape Cod Bay, USA, Chief Scientist
 2019 BCWHALES, May 2019, British Columbia, Canada, Chief Scientist
 2018 GCA, Feb 2019, 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

World Marine Mammal Conference 2019, Barcelona, 09-12.12.2019	December 2019
Ocean Sciences Meeting 2018, Portland, OR 11-16.02.2018	February 2018
174 rd Meeting of the Acoustical Society of America, New Orleans, LO	December 2017
173 rd 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

ONR Marine Mammal Program Review (24-26.04.2019), Alexandria, VA	April 2019
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 or Postdoc supervised by DPZ)

- 2020 Zitterbart DP., Smith H., Flau M., Richter S., Burkhardt E., Beland J., Bennett L., Cammareri A., Davis A., Holst M., Lanfredi C., Michel H., Noad M., Owen K., and Boebel O. “Scaling the laws of thermal imaging marine mammal detection”, *Journal of Atmospheric and Oceanic Technology*, <https://doi.org/10.1175/JTECH-D-19-0054.1>
- 2020 Smith HR., Zitterbart DP., Flau M., Norris TF., Ferguson EL., Jones C., Boebel O., Moulton VD., „ A field comparison of marine mammal detections via visual, acoustic, and infrared (IR) imaging methods offshore Atlantic Canada”, *Marine Pollution Bulletin*, Volume 154, May 2020, 111026; <https://doi.org/10.1016/j.marpolbul.2020.111026>
- 2019 *Menze S., Zitterbart DP., Biuw M. Boebel O., “Estimating the distribution of vocalizing animals from ambient sound spectra using widely spaced recorder arrays and Bayesian inversion”, *The Journal of the Acoustical Society of America* 146, 4699 (2019); <https://doi.org/10.1121/1.5139406>
- 2019 Trathan PN., Wienecke B., Barbraud C., Jenouvrier S., Kooyman G., Bracegirdle TJ., Phillips T., Le Bohec C., Ainley D., Ancel A., Zitterbart DP., Chown S., LaRue M., Cristofari R., Younger J., Clucas G., Bost CA., Brown J., Gillett H.J., Fretwell P.T. “ The emperor penguin - Vulnerable to projected rates of warming and sea ice loss.” *Biological Conservation*, 2019; 108216 DOI: 10.1016/j.biocon.2019.108216
- 2019 *Gerum R. *Richter S., *Winterl A., Mark, C., Fabry B., Zitterbart DP. “CameraTransform: a Scientific Python Package for Perspective Camera Corrections“, *SoftwareX*, Volume 10, 2019, 100333, <https://doi.org/10.1016/j.softx.2019.100333>.
- 2019 Okane D., Koveke EP., Tashima K., Saeki K., Maezono S., Nagahata T., Hayashi N, *Owen K., Zitterbart DP., Ohira SI, Toda K. “High sensitivity monitoring device for onboard measurement of dimethyl sulfide and dimethylsulfoniopropionate in seawater and oceanic atmosphere”, *Anal. Chem.*2019, 91 ,1610484-10491, <https://doi.org/10.1021/acs.analchem.9b01360>
- 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, Hänssler 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.

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., Knies 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

- 2020 Zitterbart DP., “The Emperor Penguin under Climate change in the southern ocean.” Norman Bird Sanctuary, Middleton, RI, 16.01.2020
- 2019 Zitterbart DP., “The physics of animal groups - using remote sensing technologies to

- understand behavior and ecology of penguins and whales.”, IROAST Keynote Speaker, University of Kumamoto, Japan, 11.11.2019
- 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

- 2019 Zitterbart DP., Smith H, Flau M, Burkhardt E, Moulton V, Boebel O. “Scaling the laws of marine mammal detection using thermal imaging systems,” World Marine Mammal Conference, Barcelona, December 2019
- 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.
- 2014 Zitterbart DP., Richter S., Schneider W., Sollner E., Le Bohec C., Ancel A., Fabry B. "Long-term monitoring of penguin behavior, population dynamics and colony structure," SCAR Open Science Meeting, Auckland, August, 2014.
- 2014 Zitterbart DP., Richter S., Kindermann L., Boebel O. "Automatic detection and identification of whales using thermal and visual imaging techniques for cetacean censuses and marine mammal mitigation," Ocean Science Meeting 2014, Hawaii, 21 - 28 February 2014
- 2013 Zitterbart DP., Richter S., Schneider W., Sollner E., Le Bohec C., A. Ancel, Fabry B. "Design and implementation of remote-operated observatories for long-term monitoring of penguin behavior and population dynamics," SCAR Biology, Barcelona, 14-19 July 2013.
- 2013 Zitterbart DP., A. Ancel, C. LeBohec, A. Nesterova, Gerum RC., Metzner C. and Fabry B. "Collective motion in penguin colonies (invited)," Physics of Emergent Behaviour, Brighton, June 2013.
- 2013 Zitterbart DP., A. Ancel, C. LeBohec, A. Nesterova, Gerum RC., Metzner C., Fabry B. "Collective Motion in penguin Colonies," Changing Polar Regions, Reports on Polar and Marine Research 659/2013, Hamburg, 17-22. March 2013.
- 2013 Zitterbart DP., Uher T., Uher M., Gloeckler F., Kroupa A., Haeuser C. "Biodiversity in your palm," Southeast Asian Gateway Evolution, Berlin, 11-15. March 2013.
- 2012 Zitterbart DP., Richter S., Kindermann L., Bombosch A., Burkhardt E., Schneider W., Wienecke B., Butler J.T., Fabry B., Boebel O. "Learning from images – how remotely operated observatories help to understand animal behavior in polar regions," IPY 2012 Meeting - from knowledge to action, Montreal, April 2012.
- 2011 Zitterbart DP., Richter S., Le Bohec C., Schneider W., Metzner C., Gerum RC., Wienecke B., Fabry B. "Physics in penguin colonies," Annual Meeting of the German Physical Society (DPG), Berlin, March 2011.
- 2011 Zitterbart DP., Kindermann L., Boebel O. "MAPS: an Automated Whale Detection System for Mitigation Purposes," Society of Exploration Geophysicists (SEG), San Antonio, USA, September 2011.
- 2011 Zitterbart DP., M. Uher, T. Uher "anymals.org – a community driven biodiversity information tool for mobile phones," German Ornithological Society (DG-O), Potsdam, Germany, September 2011.
- 2011 Zitterbart DP., M. Uher, T. Uher, "anymals.org – a community driven biodiversity information tool for mobile phones," Effects of Sound in the Ocean on Marine Mammals, ESOMM2011, Amsterdam, Netherlands, September 2011.
- 2011 Zitterbart DP., Kindermann L., Richter S., Burkhardt E., Bombosch A., Boebel O. "MAPS-IR: Automatic whale detection and identification using a shipborne 360° High Resolution Thermal Imager." Effects of Sound in the Ocean on Marine Mammals, ESOMM2011, Amsterdam, Netherlands, September 2011.
- 2011 Zitterbart DP., M. Uher, T. Uher "anymals.org – a community driven biodiversity information tool for mobile phones," BioSystematics, Berlin, February 2011.
- 2010 Zitterbart DP., Kindermann L., Boebel O., Fabry B. "Image Processing in Polar Science - how to find and observe whales and penguins," British Computer Society, International Summer school for Pattern Recognition, Plymouth 2010.
- 2010 Zitterbart DP., Kindermann L., Burkhardt E., Boebel O. "Automated whale detection and local, high resolution ice mapping using a 360° ship-based thermal imager," IPY Polar Science Conference, Oslo 2010.
- 2007 Zitterbart DP., Oakes P., Morin N., Fabry B., Reichner J., Tang J. X. "Neutrophil Adhesion and Migration Are Mediated by Matrix Rigidity," American Society of Cell Biology, Annual Meeting, 1466, 2007.
- 2007 Zitterbart DP., Oakes P., Morin N., Tang J., Fabry B. "Effect of matrix stiffness and surface coating on neutrophil migration," 2nd European Meeting on Cell Mechanics Barcelona Spain, 09/2007.

- 2007 Zitterbart DP., Mierke CT., Koch TM., Fabry B. "Rate of stress increase during cell spreading on substrates with different matrix rigidity," *Verhandl. DPG(IV)* 71(4), 2007.
- 2007 Zitterbart DP., Mierke CT., Koch TM., Fabry B. "Rate of stress increase during cell spreading on substrates with different matrix rigidity," *Biophysical Journal* 92. (Suppl 1), 2007.
- 2006 Zitterbart DP., Mierke CT., Fabry B. "Long range correlation of force fluctuation in an endothelial cell layer," *ACSB* 46 (Suppl 1): S56, 2006.
- 2006 Zitterbart DP., Mierke CT., Fabry B. "Long range correlation of force fluctuation in an endothelial cell layer," *J Biomech* 39 (Suppl 1):S234, 2006.
- 2006 Zitterbart DP., Raupach C., Mierke CT., Metzner C., Fabry B. "Force fluctuation and microrheology in endothelial cells," *J Biomech* 39 (Suppl 1): S231, 2006.
- 2006 Zitterbart DP., Raupach C., Pauli J., Mierke CT., Kollmannsberger P., Metzner C., Goldmann WH., Fabry B. "Stress fluctuation and microrheology in endothelial cells." *Biophysical Journal* 90 (Suppl 1), 2006.

CO-AUTHORED CONFERENCE ABSTRACTS

- 2019 Owen K., Bocconcelli A., Bombosch A., Toda K., Warren J., Wiley D., Tashima K., Saeki K., Zitterbart DP. „Wake up and smell the krill: Is fine-scale dimethyl sulfide (DMS) concentration correlated to prey quality or humpback whale distribution?”, *World Marine Mammal Conference 2019, Barcelona, Spain, 9 - 12 December 2019*
- 2019 Moore M., Lonati G., Miller C., Zitterbart D., Corkeron P. „Thermal infrared detection of peri-callosity heat loss, core temperature and subsurface movement in surfacing and skim feeding North Atlantic right whales.”, *World Marine Mammal Conference 2019, Barcelona, Spain, 9 -12 December 2019*
- 2019 Bocconcelli A., Ochs M., Zitterbart DP. „An affordable, hand-deployable, ropeless and acoustically silent mooring design for passive acoustic monitoring, TOSSIT”, *World Marine Mammal Conference 2019, Barcelona, Spain, 9 -12 December 2019*
- 2019 Español-Jiménez S., Bahamonde P., Bocconcelli A., Cantergiani C., Hickmott L., Howes G., Landea R., Saddler M., Sayigh L., Segre P., Warren J., Zitterbart DP., Chiang G. “Five years studying blue whales in the Southern Chile.”, *World Marine Mammal Conference 2019, Barcelona, Spain, 9 -12 December 2019*
- 2018 Verfuss UK., Gillespie D., Gordon J., Marques T., Miller B., Plunkett R., Theriault J., Tollit D., Zitterbart DP., Hubert P., & Thomas L. “Low Visibility Real-time Monitoring Techniques Review”, *Effects of Sound on Marine Mammals, ESOMM/JIP-2018, 9 to 14 September 2018 in The Hague, The Netherlands*
- 2018 Boebel O., Burkhardt E., Cammareri A., Flau M., Ketten D., Zwicker S., Zitterbart D.P. “Emissivity rules: Principles of infrared whale detection revisited.”, *Effects of Sound on Marine Mammals, ESOMM/JIP-2018, 9 to 14 September 2018 in The Hague, The Netherlands*
- 2018 Smith HR., Zitterbart DP., Flau M., Boebel O., Moulton VD. *Detecting Marine Mammals at Sea in Atlantic Canada: Comparing Detections Made Using a Rotating Thermal Imaging Camera with Traditional Visual and Acoustic Methods, Coastal Zone Canada, St. John’s, Canada, July 2018*
- 2018 Richter S., Gerum R., Fabry B., Zitterbart DP., *Physical Principles of the Collective Behavior in Emperor Penguin Colonies, Collective Behavior Conference, Trieste, Italy, May 2018*
- 2017 Smith HR., Zitterbart DP., Moulton VD. *Optimizing a rotating thermal-IR system to automatically detect marine mammals in Atlantic Canada. Marine Mammal Science Conference, Halifax, Oct 2017*
- 2017 *Warren VE., Cammareri A., Zitterbart DP. “How automatic detection and classification of southern right whale upcalls is influenced by choice of software and parameter values,” *European Cetacean Society, Annual Meeting, Denmark, May 2017.*
- 2017 *Winterl A., Zitterbart DP., Richter S., Gerum R., Fabry B., “Automated tracking of adélie penguins,” *German Physical Society, Spring Meeting, Dresden, 2017.*
- 2017 Morawetz F., Morawetz K., Zitterbart DP. “Huddle-behavior simulation of emperor penguins,” *German Physical Society, Spring Meeting, Dresden, 2017.*
- 2016 Jürgen Weissenberger J., Durinck J., Collin-Hansen C., Skogvold AAN., Barstad Olsen T., McKeever T., Flau M., Cammareri A., Zitterbart DP. “Marine Mammal Observation Assistance Tool: The “Durimeter”, allowing automated recording of parameters relevant for MMO work,” *Effects of Noise on Aquatic Life (AN2016), Dublin 2016.*
- 2016 *Gerum R., Fabry B., Metzner C., Le Bohec C., Bonadonna F., Nesterova A., Zitterbart DP. “Structural Organization in King penguin Colonies21st,” *German Physical Society, Spring Meeting, Berlin, 2016.*

- 2015 *Thomisch K., Boebel O., Clark C., Spiesecke S., Zitterbart DP., Van Opzeeland I. "Spatio-temporal patterns of Antarctic blue whale vocal behavior from a multi-year PAM array in the Southern Ocean," 21st Biennial Conference on the Biology of Marine Mammals, San Francisco, 13.-18. December 2015.
- 2015 Le Bohec C., Whittington JD., Courtecuisse J., Zitterbart DP., Richter S., Nesterova A., Bonadonna F., Cornet C., Cristofari R., Toscane C., Brucker M., Houstin A., Klein AC., Eiselt C., Le Taro F., Le Maho Y. "Functioning of penguin colonies: structuration and dynamics," 2nd World Seabird Conference, Cape Town, South Africa, October 26-30, 2015.
- 2015 *Richter S., Le Bohec C., Le Maho Y., Fabry B., Zitterbart D.P. "A low-impact individual monitoring system for Adélie penguins," German Society for Polar Research, Munich, 6.-11. September 2015.
- 2015 *Thomisch K., van Opzeeland I., Spiesecke S., Zitterbart DP., Boebel O. "Impact of detector/classifier performance and ambient noise levels on biological inferences," 7th International DCLDE workshop, La Jolla, 13-16. July 2015.
- 2015 *Gerum R., Fabry B., Metzner C., Le Bohec C., Bonadonna F., Nesterova A., and Zitterbart DP. "Cluster formation in king penguin chicks," German Physical Society, Annual Meeting, Berlin, 15.-20. March 2015.
- 2014 Bombosch A., Zitterbart DP., van Opzeeland I., Frickenhaus S., Richter C., Wisz MS., Boebel O. "Modelling Habitat Suitability of Humpback and Antarctic Minke Whale Feeding Grounds in the Southern Ocean," Effects of Sound on Marine Mammals (ESOMM 2014), Amsterdam, September 2014.
- 2014 *Gerum RC., Fabry B., Metzner C., Beaulieu M., Ancel A. and Zitterbart DP. "The origin of traveling waves in an emperor penguin huddle," European Conference on Complex Systems (ECCS), Lucca, Italy, September 2014.
- 2014 *Gerum R C, Fabry B, Metzner C, Beaulieu M, Ancel A and Zitterbart DP. "The origin of traveling waves in an emperor penguin huddle," Annual Meeting of the German Physical Society (DPG), Dresden, March 2014.
- 2013 *Gerum RC., Zitterbart DP., Metzner C., A. Ancel, Fabry B. "Swarm model for the huddling behavior of Emperor penguins," Physics of Emergent Behaviour, Brighton, June 2013.
- 2013 S. Rettig, Zitterbart DP., Boebel O. "Challenges for data management of large acoustic data sets," IUCN AMIBIO, Bonn, 12-14 June 2013
- 2013 Boebel O. and Zitterbart DP. "24/7 Automatic Detection of Whales near Seismic Vessels using Thermography," 75th EAGE Conference & Exhibition incorporating SPE EUROPEC 2013, London, UK, 10-13 June 2013.
- 2013 Bombosch A., IC. van Opzeeland, Zitterbart DP., MS. Wisz, C. Richter, S. Frickenhaus, Boebel O. "Modelling Habitat Suitability of Humpback and Antarctic Minke Whales in the Southern Ocean," Changing Polar Regions, Reports on Polar and Marine Research 659/2013, Hamburg, 17-22. March 2013.
- 2013 *S. Menze, Kindermann L., I. van Opzeeland, S. Rettig, Bombosch A., Zitterbart DP., Boebel O. "Soundscapes of the Southern Ocean: Passive Acoustic Monitoring in the Weddell Sea," Changing Polar Regions, Reports on Polar and Marine Research 659/2013, Hamburg, 17-22. March 2013.
- 2012 J. Weissenberger and Zitterbart DP. "Surveillance of Marine Mammals in the Safety Zone around an Air Gut Array with the Help of a 360° Infrared Camera System," SPE/APPEA International Conference, Perth, September 2012.
- 2012 *Richter S., Zitterbart DP., Schneider W., Sollner E., Fabry B. "Design and implementation of remote-operated observatories for long-term monitoring of penguin behavior and population dynamics," IPY 2012 Meeting - from knowledge to action, Montreal, April 2012.
- 2011 *Gerum RC., Metzner C., Zitterbart DP., Fabry B. "Swarm model for the huddling behavior of Emperor penguins," Annual Meeting of the German Physical Society (DPG), Berlin, March 2011.
- 2011 J. Weissenberger, M. Brees, J. Christensen, K. Hartin, D. Ireland, Zitterbart DP. "Monitoring for marine mammals in Alaska using a 360° infrared camera system," Marine Mammal Science Conference (MMS), Tampa, USA, December 2011.
- 2010 Kindermann L., Zitterbart DP., Burkhardt E. , Boebel O. "Detection and Tracking of Whales Using a Ship-Borne, 360° Thermal Imaging System," Deutsche Gesellschaft fuer Polarforschung, 24. International Conference, Obergurgl 2010.
- 2010 Burkhardt E., Kindermann L., Zitterbart DP. , Boebel O. "Detection and Tracking of Whales Using a Ship-based, 360° Thermal Imaging System," The Effects of Noise on Aquatic Life, Second International Conference, Cork 2010.

- 2008 Roesel D., Brabek J., Tolde O., Zitterbart DP., Mierke C., Raupach C., Bicanova K., Vesely P., Fabry B. "Upregulation of Rho/ROCK signaling in sarcoma cells drives invasion and increased generation of protrusive force," Cytoskeleton signaling in Cancer, 2008.
- 2008 Roesel D., Zitterbart DP., Tolde O., Bicanova K., Fabry B., Brabek J. "Amoeboid invasion in sarcoma cells is driven by rho-gtp and mlc phosphorylation," Frontiers in Cell Migration 2008.
- 2008 Mierke CT, Kollmannsberger P, Zitterbart DP., Koch TM, Fabry B. "Human tumor cell migration through extracellular matrix in 3-D," Biophysical Journal (Suppl), 2008.
- 2008 Mierke CT, Kollmannsberger P, Koch T., Zitterbart DP., Fabry B. "Cell migration through connective tissue in 3-D," Verhandl. DPG 43, 2008.
- 2007 Diez G., Kollmannsberger P., Zitterbart DP., Mierke C.T., Smith J., Goldmann W.H. "Head and tail interactions of vinculin influence cell mechanical behaviour," American Society of Cell Biology, Annual Meeting, 2007.
- 2007 Mierke CT., Kollmannsberger P., Raupach C., Zitterbart DP., Koch T., Goldmann WH., Fabry B. "Tumor Cell Migration through Connective Tissue in 3-D," American Society of Cell Biology, Annual Meeting, 1802, 2007.
- 2007 Mierke CT., Zitterbart DP., Kollmannsberger P., Diez G., Raupach C., Fabry B., Goldmann WH. "Vinculin Contributes to Tumor Cell Invasion by Regulating Contractile Activation," American Society of Cell Biology, Annual Meeting, 1713, 2007.
- 2007 Klemm A.H., Kollmannsberger P., Zitterbart DP., Raupach C., Fabry B., Goldmann WH. "Focal Adhesion Kinase (FAK): A Regulator of Cellular Mechanics," American Society of Cell Biology, Annual Meeting, 876, 2007.
- 2007 Klemm AH., Kollmannsberger P., Zitterbart DP., Raupach C., Fabry B., Goldmann W.H. "Focal Adhesion Kinase (FAK): a cellular force transducer?" 30. Jahrestagung der Deutschen Gesellschaft für Zellbiologie, Frankfurt/Main, Germany 03/2007.
- 2007 Jafaar L., Kollmannsberger P., Zitterbart DP., Raupach C., Fabry B. "Effects of Thymosin β 4 on Cytoskeletal Organization and Cell Motility," American Society of Cell Biology, Annual Meeting, 432, 2007.
- 2007 Klemm A.H., Kollmannsberger P., Zitterbart DP., Raupach C., Fabry B., Goldmann W.H. "Focal adhesion kinase (FAK): a cellular mechano-regulator," 2nd European Meeting on Cell Mechanics Barcelona Spain, 09/2007.
- 2007 Metzner C., Raupach C., Zitterbart DP., Fabry B. "Modelling Non-Brownian Fluctuations in Stress Fiber Networks," Verhandl. DPG(IV) 71(4), 2007.
- 2007 Mierke CT., Kollmannsberger P., Diez G., Zitterbart DP., Fabry B., Goldmann WH. "Vinculin head and tail fragments control adhesion forces," Verhandl. DPG (IV) 71(4):76, 2007.
- 2007 Mierke CT., Kollmannsberger P., Zitterbart DP., Raupach C., Fabry B. "CXCR2 determines invasiveness, traction forces and cytoskeletal dynamics of tumor cells," Verhandl. DPG (IV) 71(4):114, 2007.
- 2007 Koch TM., Mierke CT., Zitterbart DP., Fabry B. "Cell tractions during tumor cell invasion in 3-D collagen gels," Biophys J 92(Suppl 1), 2007.
- 2007 Mierke CT., Kollmannsberger P., Zitterbart DP., Raupach C., Fabry B. "Traction forces and cytoskeletal dynamics determine invasiveness of human breast carcinoma cells," Biophysical Journal 92. (Suppl 1), 2007.
- 2006 Mierke CT., Kollmannsberger P., Zitterbart DP., Fabry B. "A highly invasive variant of MDA-MB-231 breast carcinoma cell showed increased tractions and higher dynamics of cytoskeletal reorganization compared to a low invasive variant," ACSB 46 (Suppl 1): S68, 2006.
- 2006 Klemm AH., Zitterbart DP., Goldmann WH. "Focal adhesion kinase (pp125FAK) phosphorylation is linked to force generation in F9 cells," World Congress of Biomechanics, Munich, Germany, 08/2006.
- 2006 Raupach C., Pauli J., Zitterbart DP., Mierke C., Fabry B. "Correlated particle motion in an endothelial cell monolayer," J Biomech 39 (Suppl 1): S581, 2006.

GENERAL MEDIA PRESENCE (selected)

- 2020 Wie Künstliche Intelligenz bei der Rettung der Pinguine helfen soll (German), Der Tagesspiegel, 01/18/2020 ([link](#))
- 2019 Gruppenkuscheln in der Antarktis (German), Berliner Zeitung, 04/02/2019
- 2019 Kuscheln vor den Kameras (German), Frankfurter Allgemeine Zeitung, 03/26/2019
- 2019 Blue Planet Live, Tagging Humpback whales in Antarctica, BBC, 03/27/2019

- 2019 Tagging whales in Antarctica, Blue Planet Live, **BBC**, 28.03.2019
- 2018 Huddling emperor penguins undergo phase transition, Physics World, 02.05.2018 ([link](#))
- 2018 Emperor Penguins' Huddles Change in Response to Weather, EOS, doi:[10.1029/2018EO100699](https://doi.org/10.1029/2018EO100699), 12.06.2018
- 2018 How spying on penguins just might save them, NBC news, 15.05.2018 ([link](#))
- 2018 Are Emperor Penguins Eating Enough, WHOI Press Release, 2.5.2018 ([link](#))
- 2018 Huddle Masters, Lens-Of-Time, Biographic.com, California Academy of Sciences, 27.04.2018 ([link](#))
- 2018 I say, I say, I say: What's the difference between a king penguin and a liquid?, The Register, 5.4.2018 ([link](#))
- 2018 Penguins Go Through the Flow, Woods Hole Oceanographic Institution Press Release, 5.4.2018 ([link](#))
- 2017 The High-Tech Tools That Could Save Blue Whales From Ship Collisions, Oceans Deeply, 25. Oct 2017 ([link](#))
- 2017 Sound and Color, UCSB Current, 13. Oct 2017 ([link](#))
- 2017 Langzeitstudie enthüllt die Geräuschkulisse des Südpolarmeers, Der Standart, Austria, January 2017 ([link](#))
- 2017 So klingt das Südpolarmeer, Neue Züricher Zeitung, January 2017 ([link](#))
- 2016 Umzug an der Schelfeiskante, Helmholtz Blogs, 22. June 2016 ([link](#))
- 2014 Crowd Control, **National Geographic**, June 2014
- 2014 Penguins Move in Waves, **Wildlife Professional**, The Wildlife Society, Spring 2014
- 2014 How `flowing traffic like huddle` protects emperor penguins in harsh weather, **One Pakistan**, 28.01.2014 ([link](#))
- 2014 Kaiserpinguine und ihr ausgeklügeltes Wärmesystem, 24.01.2014 **Radio Eins** ([link](#))
- 2014 Kaiserpinguin Kuschneln gegen Kälte, 24.01.2014 **Dradio Wissen** ([link](#))
- 2014 Why penguins do the wave, 16.01.2014 **nature** ([link](#))
- 2014 Penguins move in sync to keep warm, study shows, 15.01.2014 **Newsela** ([link](#))
- 2014 Penguin huddles are like 'traffic jams', 06.01.2014 **Digital Journal** ([link](#))
- 2014 Kuschnelnde Kaiserpinguine machen die perfekte Welle, 02.01.2014 **Sächsische Zeitung** ([link](#))
- 2013 Penguins huddle to keep warm like cars in a traffic jam – research, 25.12.2013 **Voice of Russia UK** ([link](#))
- 2013 Penguins huddle together to keep warm in freezing Antarctic temperatures, 23.12.2013 **South China Morning Post** ([link](#))
- 2013 Wie Pinguine sich vor Kälte schützen, 23.12.2013 **Weser Kurier** ([link](#))
- 2013 Stop and Go als Überlebensstrategie, 22.12.2013, **20 minuten** ([link](#))
- 2013 Gerakan Penguin Emperor Aptenodytes forsteri, 21.12.2013 **Laporan Penelitian** ([link](#))
- 2013 Il s'avère que les manchots se dandinent en groupes comme des voitures dans un embouteillage, 21.12.2013 **gurumed.org** ([link](#))
- 2013 Los pingüinos se mueven en grupo como los autos en un atasco, 20.12.2013 **Mundo** ([link](#))
- 2013 Penguin huddles move like traffic jams, 20.12.2013 **ScienceNews** ([link](#))
- 2013 Penguins keep warm by using 'fluid-like' motion, 20.12.2013 **National Monitor** ([link](#))
- 2013 Bewegungsanalyse: So kuschneln die Kaiserpinguine, 18.12.2013 **Spiegel Online** ([link](#))
- 2013 Dominoeffekt wie beim Stau - Kaiserpinguine kuschneln mit System, 18.12.2013 **n-tv** ([link](#))
- 2013 Das anmutige Wogen der Pinguinwelle, 18.12.2013 **Stern** ([link](#))
- 2013 Emperor Penguins Form Huddle to Stay Warm, 18.12.2013 **News Tonight Africa** ([link](#))
- 2013 Pinguine imitieren Verkehrsstau, um sich im eisigen Winter kuschnelig warm zu halten, 18.12.2013 **Trends der Zukunft** ([link](#))
- 2013 Penguins move like TRAFFIC JAMS to keep warm, 18.12.2013 **Aworship** ([link](#))
- 2013 Fancy footwork! These huddling penguins do the wave to stay warm, **Los Angeles Times** 18.12.2013 ([link](#))
- 2013 Why Penguins Do the Wave, As Explained by Traffic Jams, 18.12.2013 **Motherboard** ([link](#))
- 2013 Kaiserpinguine kuschneln in Kolonien, 18.12.2013 **Focus Online** ([link](#))
- 2013 Wellenbewegung gegen Kälte Kaiserpinguine kuschneln in Kolonien, 18.12.2013 **nachrichten.de** ([link](#))
- 2013 Stop-and-go: Wie Kaiserpinguine sich wärmen, 17.12.2013 **Welt der Physik** ([link](#))
- 2013 Travelling Wave helps Emperor Penguins Stay Warm, Researchers Find, **Nature world news** 17.12.2013 ([link](#))

- 2013 Penguin Huddle VIDEO Reveals Surprising Physics Behind Group's Efforts To Stay Warm, **Huffington Post**, 17.12.2013 [\(link\)](#)
- 2013 Penguin Huddles Move Like Waves, 17.12.2013 **discovery news** [\(link\)](#)
- 2013 Start-stop traffic helps penguin huddles grow, 17.12.2013 **NewScientist** [\(link\)](#)
- 2013 Penguin Mexican waves follow traffic rules, 17.12.2013 **ABC Science** [\(link\)](#)
- 2013 'Happy feet' penguins move like cars in a traffic jam to keep warm, 17.12.2013 **The telegraph** [\(link\)](#)
- 2013 Penguins Move In 'Traveling Wave' To Keep Warm During Antarctic Winter, 17.12.2013 **International Business Times** [\(link\)](#)
- 2013 Emperor Penguins Move Like Cars in a Traffic Jam, 17.12.2013 **wunderground.com** [\(link\)](#)
- 2013 Penguins in Antarctic move like cars in traffic jam to stay close, warm, 17.12.2013 **United Press International (UPI)** [\(link\)](#)
- 2013 How 'flowing traffic like huddle' protects emperor penguins in harsh weather, 17.12.2013 **ANI News** [\(link\)](#)
- 2013 Emperor Penguins Perform Mass Dance to Stay Warm, 17.12.2013 **Liberty Voice** [\(link\)](#)
- 2013 How 'flowing traffic like huddle' protects emperor penguins in harsh weather, 17.12.2013 **webindia123** [\(link\)](#)
- 2013 Penguins move like TRAFFIC JAMS to keep warm: Shuffles of just 2cm help the birds huddle together tightly 17.12.2013 **dailymail** [\(link\)](#)
- 2013 Beep Beep, Emperor Penguins In Perpetual 'Traffic Jam', 17.12.2013 **HNGN** [\(link\)](#)
- 2013 Penguin Mexican waves follow traffic rules, 17.12.2013 **All News Australia** [\(link\)](#)
- 2013 Start-stop traffic helps penguin huddles grow, 17.12.2013 **Mother Earth News** [\(link\)](#)
- 2013 Emperor Penguins Travel in Traffic Jam Formation to Keep Warm and Battle Antarctic Winter Conditions, 17.12.2013 **University Herald** [\(link\)](#)
- 2013 Emperor Penguins Huddle up Close to keep Out Cold: Study, 17.12.2013 **FrenchTribune** [\(link\)](#)
- 2013 Emperor penguins do the wave to keep warm, 17.12.2013 **Canada msn News** [\(link\)](#)
- 2013 Stop and Go in der Pinguinkolonie, 17.12.2013 **Spektrum** [\(link\)](#)
- 2013 Wave if you're cold! The amazing patterns that keep huddling emperor penguins protected, 16.12.2013 **The Independent** [\(link\)](#)
- 2013 To defeat Antarctic cold, penguins huddle up – and move like cars in a traffic jam, 16.12.2013 **BirdWatchingDaily** [\(link\)](#)
- 2013 Emperor penguins do the wave to keep warm, 16.12.2013 **NBC News** [\(link\)](#)
- 2013 Huddle Up: the Surprising Physics of Penguin Movements, 16.12.2013 **livescience.com** [\(link\)](#)
- 2013 Bring Me Your Huddled Penguins Who Move Like Cars in Heavy Traffic, **Scientific American** 16.12.2013 [\(link\)](#)
- 2013 Traffic jams lend insight into emperor penguin huddle, 16.12.2013 **ScienceDaily** [\(link\)](#)
- 2013 Tests passed: New AWI thermal imaging system helps researchers to protect large whales from noise around the clock, environmental research web, **IOP**, 23.08.2013 [\(link\)](#)
- 2013 Wärmekamera soll Wale vor Lärm schützen (German), **WDCS News**, 23.08.2013 [\(link\)](#)
- 2013 High-tech: Die Spur der Wale im Ozean verfolgen (German), **Global Magazin fuer nachhaltige Zukunft**, 19.08.2013 [\(link\)](#)
- 2013 Thermal imaging system protects whales from underwater noise pollution, **Vision Systems Design**, 16.08.2013 [\(link\)](#)
- 2013 IR Camera a Valuable Tool for Protecting Whales, **Photonics**, 15.08.2013 [\(link\)](#)
- 2013 Wärmebild-Kamera spürt Wale in Arktis und Antarktis auf, **Elektronik Praxis**, 14.08.2013 [\(link\)](#)
- 2013 Schutz der Meeressäuger - Wal im Wärmebild, **Sueddeutsche.de**, 14.08.2013 [\(link\)](#)
- 2013 Wenn der Wal bläst, gibt's ein Foto, **Nordsee Zeitung**, 14.08.2013 [\(link\)](#)
- 2013 Wal, da bläst er!, **Sueddeutsche Zeitung**, 14.08.2013 [\(link\)](#)
- 2013 Besserer Walschutz durch Wärmekameras (German), **Meeresakrobaten**, 13.08.2013 [\(link\)](#)
- 2013 Achtung, Wal kommt!(German), **NDR**, 13.08.2013 [\(link\)](#)
- 2013 Lärmschutz für Wale mit neuer AWI-Wärmebild-Kamera, **VBio**, 13.08.2013 [\(link\)](#)
- 2013 Früherkennung für Wale, **scinexx - Das Wissensmagazin**, 13.08.2013 [\(link\)](#)

- 2013 AWI-Wärmebild-Kamerasystem hilft Forschern, Großwale rund um die Uhr vor Lärm zu schützen (German), **DeepWave Blog**, 13.08.2013 [\(link\)](#)
- 2013 Thermal camera to help protect whales from noise pollution, **WildLifeNews**, UK, 13.08.2013 [\(link\)](#)
- 2013 New AWI thermal imaging system helps researchers to protect large whales from noise around the clock, **Phys.org**, 12.08.2013 [\(link\)](#)
- 2013 Neue Wärmebild-Kamera soll Wale vor Lärm schützen (German), **Radio Bremen**, 12.08.2013 [\(link\)](#)
- 2013 Airguns & Piledrivers: How to monitor for whales when constructing wind farms, **Science Codex**, 12.08.2013 [\(link\)](#)
- 2013 Tests passed: New AWI thermal imaging system helps researchers to protect large whales from noise around the clock, AWI, **Press Release**, 12.08.2013 [\(link\)](#)
- 2012 Pinguine - Das Geheimnis der La-Ola-Welle (German), Projekt Zukunft, **Deutsche Welle TV**, Germany, 01.04.2012 [\(link\)](#)
- 2012 Die Physik der Pinguine (German), Kulturradio, **Sueddeutsche Zeitung**, Germany, 30.03.2012 [\(link\)](#)
- 2012 Wie Kaierpinguine ihre Koerpertemperatur halten (German), Kulturradio, **RBB Radio Berlin Brandenburg**, Germany, 27.03.2012
- 2012 Como o pinguim resiste ao frio? (Portuguese), **Ciencia Hoje (Science Today)**, Brazil, 20.03.2012 [\(link\)](#)
- 2012 Wie schuetzen sich Pinguine vor der Kalte, Fudder.de, **Onlinemagazin Freiburg**, Germany, 07.02.2012 [\(link\)](#)
- 2011 W wie Wissen, TV-Documentary, **ARD**, Germany, 12.11.2011
- 2011 Penguin Shuffle, **YES Mag**, Canada, Nov/Dec 2011
- 2011 App zur Erfassung der Biologischen Vielfalt, Naturdetektive.de, **Bundesamt fuer Naturschutz**
- 2011 Wenn das Handy einen Vogel hat, Anymals.org, **Nuernberger Zeitung**, 09.11.2011
- 2011 Neue App zur Bestimmung und Erfassung der Natur, **Berliner Morgenpost**, 09.11.2011
- 2011 Die ganze Natur in einer einzigen App, **Mittelbayerische Zeitung**, 08.11.2011
- 2011 Ich fand die Erfahrung faszinierend, Portrait, **Physik Journal**, 10.2011
- 2011 Tanzen haelt warm, **Bild der Wissenschaft**, 8.2011
- 2011 Penguins Do the Wave to Keep Warm, **National Geographic**, 15.06.2011 [\(link\)](#)
- 2011 Kampf gegen Kälte - Mini-Bewegungen halten Pinguine warm, **Spiegel Online**, June 2011 [\(link\)](#)
- 2011 Moving Penguins, Radio Interview, **CBC**, As it happens, June 2011 [\(link\)](#)
- 2011 Emperor Penguins, Radio Interview, **BBC World Service**, Newshour, June 2011
- 2011 In Penguin Huddle, Researchers Find a Wave of Warmth, **New York Times**, June 2011 [\(link\)](#)
- 2011 Penguins @ HR Alle Wetter, German TV Show, **Hessischer Rundfunk**, 09.06.2011
- 2011 Not So Black and White: Research Reveals the Intricacies of Penguin Huddles, **Audubon magazine**, June 2011 [\(link\)](#)
- 2011 Never-before-seen video reveals how penguins stay warm, **Toronto Star**, June 2011 [\(link\)](#)
- 2011 Emperor Penguins Rotate Through Giant Huddle For Warmth, **Wired Science**, June 2011 [\(link\)](#)
- 2011 Cientistas descobrem como pinguins mantêm calor em grandes grupos, **Globo**, Brasil, June 2011 [\(link\)](#)
- 2011 Los pingüinos usan "olas mexicanas" para no morir congelados, **BBC Mundo** (Spanish), UK [\(link\)](#)
- 2011 Science Penguins 'co-ordinate' huddling to prevent jams, **Wired**, UK, June 2011 [\(link\)](#)
- 2011 Penguins do the wave to keep warm, **MSNBC**, USA, June 2011 [\(link\)](#)
- 2011 Penguin Groups Use Physics to Avoid Crush and Keep Warm, **Scientific American**, USA [\(link\)](#)
- 2011 So halten sich Pinguine warm, **ORF**, Austria, June 2011 [\(link\)](#)
- 2011 Penguins in step with each other, **Radio New Zealand**, NZ, June 2011 [\(link\)](#)
- 2011 Penguins take steps to beat the cold, **Sky News**, Australia, June 2011 [\(link\)](#)
- 2011 Penguin huddle secrets revealed with time lapse footage, **BBC**, UK, June 2011 [\(link\)](#)
- 2011 Penguins use Mexican waves to stay warm, **ABC**, Australia, June 2011 [\(link\)](#)