

Professor Darek J. Bogucki

Texas A&M University-Corpus Christi
Science & Engineering, Physical & Environmental Sciences

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Education

PhD, University of Southern California, 1996.

MS, Dalhousie University, 1991.

MS, Gdansk Technical University, 1982.

B.S.E., Bachelor of Science in Engineering (Engineering Diploma), Gdansk Technical University, 1981.

Licensures and Certifications

Habilitation thesis -Poland, Polish Academy of Science, Poland. (2011 - Present).

Professional Employment

Faculty part time (summer), Caltech/JPL. (July 2011 - Present).

Assistant Professor, Texas A&M University—Corpus Christi. (January 2010 - Present).
Teaching/Research

Visiting Research Faculty, University of Southern California. (August 2012 - January 2013).

Assistant Professor, University of Miami, FL. (March 2002 - December 2009).
research/teaching

Assistant Research Professor, University of Southern California. (June 1999 - March 2002).
Research

Post-doctoral fellow, Oregon State University. (June 1996 - June 1999).
research

Post-doctoral fellow, University of Southern California. (June 1996 - June 1999).
research

Researcher, Polish Academy of Science. (January 1982 - January 1988).
research

Professional Memberships

American Physical Society
American Geophysical Union

TEACHING

Teaching Experience

CMSS 6102, SEMINAR IN EARTH SYSTEM SCIENC
CMSS 6590, Coastal Oceanography Using Remote Sensing
CMSS 6996, RESEARCH
ESCI 4496, DIRECTED INDEPENDENT STUDY
ESCI 5490, ADV TOPICS:Coastal Oceanography and Remote Sensing
PHYS 1401, GENERAL PHYSICS I
PHYS 1402, GENERAL PHYSICS II
PHYS 2425, UNIVERSITY PHYSICS I
PHYS 2426, UNIVERSITY PHYSICS II
PHYS 4496, DIS: Calculus-based Problems in Mechanics

SCHOLARLY AND CREATIVE ACTIVITIES

Publications

Refereed

Book Chapters

Koblentz-Mishke, O. J., Konowalow, B. W., Wozniak, B., Bogucki, D. (1985). *Efficiency of energy conversion by phytoplankton during photosynthesis*. Moscow: Assimilation of solar energy by marine phytoplankton in the Black and the Baltic Sea'.

Koblentz-Mishke, O. J., Wozniak, B., Hapter, R., Bogucki, D. (1985). *Primary productivity, chlorophyll, assimilation number and their relation to irradiance*. Moscow: 'Assimilation of solar energy by marine phytoplankton in the Black and the Baltic Sea'.

Conference Proceedings

Karayaka, H., Mahlke, H., Bogucki, D., Mehrubeoglu, R. (2011). *A Rotational Wave Energy Conversion System Development and Validation with Real Ocean Wave Data* (pp. 7). Detroit, Michigan: IEEE Power Engineering Society 2011 General Meeting, ieeexplore.ieee.org

Journal Articles

Bogucki, D., Spiers, G. (2013). What is the percentage of global oceanic mixed layer accessible to lidar?Global and the Gulf of Mexico prospective. *Optics Express*, 21(20), 23997–24014. <http://www.opticsinfobase.org/oe/abstract.cfm?uri=oe-21-20-23997>

Bogucki, D., Drennan, W. M., Woods, S., Gremes-Cordero, S., Long, D. G., Mitchell, C. (2013). Short surface waves in the in the Canadian Arctic in 2007 and 2008. *Journal of Geophysical Research: Oceans*, 118(7), 3712–3722. <http://onlinelibrary.wiley.com/doi/10.1002/jgrc.20273/full>

Bogucki, D., Luo, H., Domaradzki, J. A. (2012). Experimental evidence of the Kraichnan scalar spectrum at high Reynolds number. *Journal of Physical Oceanography*, 42, 1717–1728.

Woods, S., Freda, W., Piskozub, J., Jonasz, M., Bogucki, D. (2010). Laboratory measurements of light beam depolarization on oceanic turbulent flows. *Applied Optics*, 49(18), 3545-3551.

Bogucki, D., Carr, M. E., Drennan, W., Woiceshyn, P., Schmeltz, M., Hara, T. (2010). Preliminary and novel estimates of CO₂ gas transfer using satellite scatterometer during the 2001GasEx. *International Journal of Remote Sensing*, 31(1), 75 - 92.

- Bogucki, D., Redekopp, L. (2008). Climate of long internal waves and resuspension on the coastal shelf. *Oceanologia*, 50(1), 5-21.
- Bogucki, D., Piskozub, J., Carr, M. E., Spiers, G. (2007). Monte Carlo simulation of propagation of a short light beam through turbulent oceanic flow. *Optics Express*, 15(21), 13988-13996.
- Bogucki, D., Domaradzki, J. A., Anderson, C., Wijesekera, H. W., Zaneveld, R. J., Moore, C. (2007). Optical measurement of rates of dissipation of temperature variance due to oceanic turbulence. *Optics Express*, 15(12), 7224-7230.
- Bogucki, D., Redekopp, L., Barth, J. (2005). Internal Solitary Waves in the Coastal Mixing and Optics Experiment-1996: multimodal structure and resuspension. *Journal of Geophysical Research*, 1-19.
- Bogucki, D., Domaradzki, J. A. (2005). Numerical study of light scattering by a boundary-layer flow. *Applied Optics*, 44(25), 5286-5291.
- Bogucki, D., Jones, B., Carr, M. E. (2005). Remote measurements of the horizontal eddy diffusivity. *Journal of Oceanic and Atmospheric Technology*, 22(9), 1373-1380.
- Bogucki, D., Domaradzki, J. A., Ecke, R. E., Truman, C. R. (2004). Light scattering on oceanic turbulence. *Applied Optics*, 43(30), 5662-5668.
- Stramski, D., Boss, E., Bogucki, D., Voss, K. J. (2004). The Role of Seawater Constituents in Light Backscattering in the Ocean. *Progress in Oceanography*, 61(1), 27-56.
- Wang, B. J., Bogucki, D., Redekopp, L. G. (2001). Internal solitary waves in a structured thermocline with implications for resuspension and the formation of thin particle-laden layers. *Journal of Geophysical Research*, 9565-9585.
- Barth, J. A., Bogucki, D. (2000). Spectral light absorption and attenuation measurements from a towed undulating vehicle. *Deep Sea Research Part I: Oceanographic Research*, 323-342.
- Bogucki, D., Redekopp, L. G. (1999). A Mechanism for Sediment Resuspension by Internal Solitary Waves. *Geophysical Research Letters*, 26(9), 1317-1320.
- Bogucki, D., Domaradzki, A. J., Stramski, D., Zaneveld, R. (1998). Comparison of near-forward light scattering on oceanic turbulence and particles. *Applied Optics*, 37(21), 4669-4677.
- Barth, J. A., Bogucki, D., Pierce, S. D., Kosro, P. M. (1998). Secondary circulation associated with a shelfbreak front. *Geophysical Research Letters*, 25(15), 2761-2764.
- Bogucki, D., Domaradzki, A. J., Yeung, P. K. (1997). Direct numerical simulations of passive scalars with $Pr > 1$ advected by turbulent flow. *Journal of Fluid Mechanics*, 343, 111-130.
- Bogucki, D., Redekopp, L. G., Dickey, T. (1997). Sediment resuspension and mixing by a resonantly generated internal solitary wave. *Journal of Physical Oceanography*, 27(7), 1181-1196.
- Bogucki, D., Garrett, C. (1993). A simple model for the shear induced decay of an internal solitary wave. *Journal of Physical Oceanography*, 23(8), 1767-1776.

Dickey, T. D., Douglass, D. H., Manov, D., Bogucki, D., Walker, P. C., Petrelis, P. (1993). An Experiment in Two-Way Communication with a Multivariable Moored System in Coastal Waters. *Journal of Atmospheric and Oceanic Technology*, 10(4), 637-644.

Bogucki, D. (1988). Reductionist and holistic modeling in marine ecology. *Polish National SCOR*.

Non-Refereed

Journal Articles

Bogucki, D. (2012). Patent: Optical Turbulence Sensor. *US Patent and Trademark Office*, pages: 6. www.google.com/patents/US20120078517

Presentations

Paris, C. B. (Author & Presenter), Irisson, J.-O. (Author), Leis, J. (Author), Bogucki, D. (Author), Piskozub, J. (Author), Siebeck, U. E. (Author), Guigand, C. M. (Author), "Sun compass orientation for reef-fish larvae", The quadrennial Indo-Pacific Fish Conference, Okinawa, Japan. (June 24, 2013).

Bogucki, D. (Author & Presenter), "Upper ocean energetics in the Grand Lagrangian Deployment (GLAD) Experiment," Gulf of Mexico Oil Spill & Ecosystem Science Conference, BP, New Orleans, LA. (January 21, 2013).

Bogucki, D. (Author & Presenter), "Remote Ocean Mixed Layer Depth Parameter Measurement Validation - early results", University of Southern California, Los Angeles, CA. (December 2012).

Bogucki, D., "Upper ocean energetics," CARTHE All Hands Meeting, BP, Miami, FL. (November 2012).

Bogucki, D. (Author & Presenter), "Remote Ocean Mixed Layer Depth Parameter Measurement Validation funded by Director's Research Development Fund Proposal FY 2012", JPL, Pasadena, CA. (October 2012).

Karayaka, H. (Author), Mahlke, H. (Author & Presenter), Bogucki, D. (Author), Mehrubeoglu, R. (Author), "A Rotational Wave Energy Conversion System Development and Validation with Real Ocean Wave Data," IEEE Power and Energy Society General Meeting, IEEE, Detroit MI. (July 25, 2011).

Bogucki, D., "Temperature spectra and the light beam depolarization in laboratory Rayleigh-Benard convection with the Rayleigh number between 10^8 to $5 \cdot 10^9$," 63rd Annual Meeting of the American Physical Society, Division of Fluid Dynamics 2010, American Physical Society, Long Beach, CA. (November 2010).

Bogucki, D., "Ocean optics and turbulence," Okinawa Institute of Science and Technology, Okinawa, Japan. (August 2010).

Bogucki, D., "Coastal internal waves," Polish Academy of Science, Sopot, Poland. (June 2010).

Bogucki, D., "Ocean optics and turbulence," Tokyo University of Marine Science and Technology, Tokyo, Japan. (May 2010).

Bogucki, D., "Laboratory Verification of the Optical Turbulence Sensor (OTS): Particulate Volume Scattering Function and Turbulence Properties of the Flow," ONR Ocean Optics Research Symposium, ONR, Portland, Oregon. (March 2010).

Bogucki, D., Freda, W., Woods, S., "Importance of turbulence on the light scattering in the ocean," Ocean Optics XIX, Tuscany, Italy. (2008).

Freda, D., Bogucki, D., Woods, S., Piskozub, J., Jonasz, M., "Polarization and near-forward light scattering on turbulent flow," Ocean Optics XIX, Tuscany, Italy. (2008).

Woods, S., Bogucki, D., Freda, W., "Wavefront sensor measurements of large particles Volume Scattering Function," Ocean Optics XIX, Tuscany, Italy. (2008).

Bogucki, D., "Coastal Internal Solitary Waves – why do we care?," Polish Academy of Science, Sopot, Poland. (October 2007).

Bogucki, D., "Using optics to study small scale physical processes in the ocean," Polish Maritime Academy, Gdynia, Poland. (October 2007).

Bogucki, D., "Interscale energy transfer for band decompositions using spectral sharp and smooth filters," 59th Annual Meeting of the Division of Fluid Dynamics, American Physical Society, Tampa, FL. (November 19, 2006).

Bogucki, D., "New methods of optical turbulence microstructure measurements," Los Alamos National Laboratory /CNLS, New Mexico. (June 2006).

Bogucki, D., "Using optics to study small scale physical processes in the ocean," Naval Postgraduate School, Monterey, CA. (March 2006).

Contracts, Grants and Sponsored Research

Grant

Bogucki, Darek (Principal), "Near Surface Turbulence in Coastal Environment – Effects of Surface Waves and Flow Shear," Sponsored by Texas Research Development Fund, State, \$35,000.00. (2010 - 2012).

Sponsored Research

Bogucki, Darek (Principal), "Consortium for Advanced Research on Hydrocarbon Transport in the Environment (CARTHE)," Federal, \$780,000.00. (October 2011 - October 2014).

Bogucki, Darek, "Remote Ocean Mixed Layer Depth Parameter Measurement Validation," Sponsored by Caltech/JPL, Federal, \$200,000.00. (March 2012 - March 2013).

Bogucki, Darek, "Laboratory turbulence measurements," Sponsored by Tokyo University of Marine Science and Technology, Other, \$10,000.00. (December 2011 - January 2012).

Bogucki, Darek, "Faculty Part Time award," Sponsored by Caltech/JPL, Federal, \$7,000.00. (July 15, 2011 - August 15, 2011).

SERVICE

Department

Committee Chair, Academic Recruitment - CMSS. (2012 - Present).

College

Committee Chair, Chair of Assistant Professor, Atmospheric Sciences - Faculty search - two positions. (January 2013 - Present).

Committee Member, S&E Research Enhancement/Research-Reassignment Committee. (January 2012 - Present).

Committee Member, S & T Curriculum Committee. (November 2010 - Present).

Committee Chair, Chair of Assistant Professor of Physics - Faculty search - (January 2011 - May 2011).

University

Program Organizer, MOA (Memorandum of Agreement) with Gdansk University, Poland. (December 2013 - December 2017).

Program Organizer, MOA (Memorandum of Agreement) with The Instituto Oceanográfico da Universidade de São Paulo. (December 2013 - December 2017).

Professional

Reviewer, Journal Article, Applied Optics.

Panel member, EOS.

Reviewer, Journal Article, Journal of Fluid Mechanics.

Reviewer, Journal Article, Journal of Geophysical Research.

Reviewer, Journal Article, Journal of Physical Oceanography.

Panel member, NASA Physical Oceanography Program.

Reviewer, Journal Article, National Academy of Sciences of US.

Panel member, NSF Physical Oceanography Programs.

Reviewer, Journal Article, Optics Express.

Reviewer, Journal Article, Physical Review Journals.

Reviewer, Journal Article, Physics of Fluid.

Reviewer, Journal Article, Reviews of Modern Physics.

Reviewer, Grant Proposal, Sea Grant.

Editor, Journal Editor, Journal of Fluids (International Journal). (January 2013 - Present).

Reviewer, Grant Proposal, Marine Science & Technology Foundation (Google). (January 2013 - Present).