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Dr. Gero A. Nootz

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Technical Expertise

- Spatial and temporal laser beam characterization
- Field and laboratory measurements of light propagation in random and nonlinear media
- Simulation of light propagation in random and nonlinear media
- Design of LIDAR transmitters and receivers
- Operating, maintenance and development of laser systems with wavelengths from UV to Mid-IR and pulse-width from 10 fs to 10 ns
- Ultrafast optical spectroscopy
- Fluorescence techniques: single and multi-photon excitation, time-resolved fluorescence, fluorescence anisotropy
- Computer Skills: WaveTrain, LabVIEW, AutoCAD, SolidWorks, MatLab, Mathematica, MathCAD, Origin, C++

Research Experience

Postdoctoral Research

2014 – Present NRC Research Associate, U.S. Naval Research Laboratory,
Advisor: Dr. Weilin Hou

- Characterization of laser beam distortion due to optical turbulence
- Characterization of optical turbulence in Rayleigh–Bénard convection by experiment and simulation

2013 – 1014 NRC Research Associate, Naval Postgraduate School, Monterey CA

- Wave Optics Simulation of high energy laser beam propagation through deep optical turbulence for directed energy applications.
- Performance prediction of adoptive optics systems

2010 – 1013 Research Associate, Harbor Branch Oceanographic Institute, Florida Atlantic University, Ft. Pierce, FL

- Characterization of laser beam distortion due to optical turbulence in the ocean
- Design of LIDAR transmitters and receivers
- Proof of concept for small form factor frequency domain fluorescence lifetime sensor for use on autonomous underwater vehicles

Doctoral Research

2005 – 1010 CREOL, University of Central Florida, Orlando, FL

- Nonlinear optical characterization of semiconductor quantum dots
- Design and implementation of a computerized data acquisition system

Education

2005 – 2010 PhD in Physics; CREOL and the Department of Physics, University of Central Florida, Orlando, Florida

1996 – 1999 Bachelors in Physical Engineering; Fach Hochschule, Luebeck, Germany

Selected Publications

1. **G. Nootz,** Ewa Jarosz, Fraser R. Dalgleish, and Weilin Hou, "Quantification of optical turbulence in the ocean and its effects on beam propagation," Appl. Opt. 55, 8813-8820 (2016)
2. **G. Nootz**, Weilin Hou and F. R. Dalgleish. "Determination of flow direction of an optically active turbulent field by means of a single beam" Submitted to Optics Letters, (2013).
3. **G. Nootz**, Weilin Hou and F. R. Dalgleish. "The effect of optical turbulence on the propagation of Laser beams in the ocean" In preparation for Applied Optics, 2013.
4. B. Ouyang, F. R. Dalgleish; F. M. Caimi,; T. E. Giddings; J. J. Shirron, A. K. Vuorenkoski, W. Britton, B. Metzger, B. Ramos, **G. Nootz.** "Compressive sensing underwater laser serial imaging system" *J. Electron. Imaging*. 22(2), 021010 (2013)
5. F. R. Dalgleish, **G. Nootz**, W. Hou, A. K. Vuorenkoski, B. Ouyang, and W. T. Rhodes. **"**Experimental assessment of laser line scan underwater image blurring due to mixing layer turbulence", In preparation for Applied Optics, 2013.