**Donna Waters**

www.pcopticalengineering.com

## EDUCATION

University of Central Florida (CREOL) — Master of Science, Optics, 2002
University of California, Santa Cruz — Master of Science, Physics, 1998
University of California, Santa Cruz — Bachelor of Sciences, Physics, 1995

## EXPERIENCE

**PROOF OF CONCEPT OPTICAL ENGINEERING, LLC**, Boulder, CO **2013-2017**
***Optical Consultant / Owner***
I design optics for a wide variety of products, including virtual reality goggles, augmented reality glasses, holographic and diffractive systems, freeform optical systems, digital microscopes, smartphone and DSLR optical accessories, spectrometers, plenoptic cameras, LED, laser diode, and bulb illumination systems, IR sensors, fluorescence systems, and LCD projector systems.

I have currently-supported, commercial licenses for Zemax OpticStudio and Matlab with the Image Processing Toolbox. I also have Mathcad Prime.

I provide toleranced drawings per the ISO 10110 standard. I work closely with mechanical designers and lens fabricators to ensure that specifications and tolerances are understood and that performance can be verified.

I have an optical prototyping and testing lab on-site, with larger, fee-based, optical characterization facilities nearby.

**MICRON TECHNOLOGY**, Longmont, CO **2012**
***Senior Optical Engineer***
Designed optics for picoprojectors and microdisplay viewers.

**DONNA WATERS, SOLE PROPRIETOR**, Boulder, CO **2011-2012**
***Optical Consultant***
Provided custom designs and off-the-shelf solutions for various optical applications.

**BALL AEROSPACE & TECHNOLOGIES CORP.,** Boulder, CO **2002-2011**
***Senior Optical Engineer***
Developed stray light models of scientific instruments. Analyzed the effects of surface scatter, glints, polarization, fluorescence, diffraction, interference, ghosting, ASE, etc. on performance. Designed free space optical systems. Applications included LIDAR, fiber optic lasercom, cameras, remote sensing, thermal imaging, and telescopes.

**FLORIDA SOLAR ENERGY CENTER**, Cocoa, FL **2002**
***Optical Consultant, illumination modeling***

**WAVE OPTICS**, Mountain View, CA **2000-2001**
***Staff Physicist, fiber optics R&D***

**MAXTOR - ADVANCED TECHNOLOGY**, Milpitas, CA **1999-2000**
***Head Media Engineer, spectroscopy-based failure analysis***

**NATIONAL RENEWABLE ENERGY LABORATORY (NREL)**, Golden, CO **1997-1998**
***Graduate Research Scientist, CdTe solar cell R&D***

**ZENTRUM FUER ANGEWANDTE ENERGIEFORSCHUNG**, Germany **1996**
***Visiting Research Scientist, silicon solar cell R&D***

**UNIVERSITY OF CALIFORNIA DEPT. OF CHEMISTRY**, Santa Cruz CA **1994-1995**
***Undergraduate Research Scientist, ultrafast lasers and photovoltaics***

**SANDIA NATIONAL LABORATORIES**, Albuquerque, NM **1993**
***Visiting Research Scientist, photo-electrochemistry***

**NASA-AMES RESEARCH CENTER**, Moffett Field, CA **1991-1992**
***Analytical Chemist, thermal protection materials science***

## PUBLICATIONS AND TALKS

Stray Light in Packaged Detectors, D. M. Waters, M. M. Blouke, A. Harwit, and D. Heath, Proc. SPIE Optical Systems Degradation, Contamination, and Stray Light Effects, San Diego, CA 6291, 62910U (2006)

Surface Analysis of CdTe after Various Pre-contact Treatments, D. M. Waters, D. W. Niles, T. A. Gessert, D. Albin, D. H. Rose, and P. Sheldon, Proc. IEEE 2nd World Conference on Photovoltaics and Solar Energy Conversion, Vienna, Austria 1043 (1998).

Chemical Reactivity of CdCl2 Wet-deposited on CdTe Films Studied by X-ray Photoelectron Spectroscopy, D. W. Niles, D. M. Waters, and D. Rose, Applied Surface Science, Vol. 136, 221-229 (1998).

CdTe/CdS Solar Cells: Surface Analyses of CdTe Prior to Contact Application, D. M. Waters, Masters Thesis in Physics 1998.

The Effect of Surface Conditions on the Ultrafast, Photoinduced Electron Dynamics of CdS Colloidal Nano-particles, D. M. Waters, Conference Talk: 7th Annual American Chemical Society Undergraduate Research Symposium, San Jose State University 1995.

Preparation and Ultrafast Optical Characterization of Metal and Semiconductor Colloidal Nano-particles, B. A. Smith, D. M. Waters, A. E. Faulhaber, M. A. Kreger, and J. Z. Zhang, Journal of Sol-Gel Science and Technology; Vol. 9, 125-137 (1995).

## OTHER QUALIFICATIONS

Certified Associate in Project Management - License 1658692
Optical Society of America -Member 352047