

# Daniel S. Badali

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## WORK EXPERIENCE

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TRIPLE RING TECHNOLOGIES, NEWARK, CALIFORNIA

2015 – PRESENT

Senior Physicist

- Developed novel x-ray technology for medical and security applications

## RESEARCH EXPERIENCE

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MILLER LAB,

MAX PLANCK INSTITUTE FOR THE STRUCTURE AND DYNAMICS OF MATTER

2011 – 2015

- Designed and built the world's first time-resolved low energy transmission electron diffractometer to make movies of atomic dynamics in thin films
- Discovered that solvated electrons are responsible for the reduction of ultraviolet-irradiated graphene oxide in water

GRADINARU LAB, UNIVERSITY OF TORONTO

2009 – 2011

- Applied various single-molecule fluorescence methods to establish the effectiveness of a novel anti-carcinogenic therapy

FIELDS INSTITUTE FOR RESEARCH IN MATHEMATICAL SCIENCES

2010

- Modeled the behaviour of a thin film inside a rotating cylinder with applications to lubricant development

## EDUCATION

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MAX PLANCK INSTITUTE FOR THE STRUCTURE AND DYNAMICS OF MATTER

UNIVERSITY OF HAMBURG, GERMANY

2011 – FALL 2015 (EXPECTED)

M.Sc. and Ph.D. Physics

Dissertation: Observation of Structural Dynamics and Atomic Motion in Thin Films Studied by Ultrafast Electron Diffraction and Transient Optical Spectroscopy

UNIVERSITY OF TORONTO, CANADA

2007 – 2011

Honours B.Sc. with High Distinction, Biological Physics (Specialist), Mathematics (Minor)

## EXPERIMENTAL TECHNIQUES

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x-ray computed tomography (CT), ultrafast electron diffraction, ultrafast optics, transmission electron microscopy (TEM), Langmuir-Blodgett/-Schaefer, ultrahigh vacuum systems, fluorescence microscopy

## COMPUTER SKILLS

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Languages: MATLAB, C++, Python, Labview, HTML/CSS

Tools: Geant4, Mathematica, Visual Studio, CAD

Techniques: numerical methods, optimization, image/discrete signal processing, Monte Carlo simulations

## SELECTED REFEREED PUBLICATIONS (PUBLISHED: 6, SUBMITTED: 1, IN PREPARATION: 3)

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2. R. Y. N. Gengler<sup>†</sup>, **D. S. Badali<sup>†</sup>**, *et al.*, “Revealing the ultrafast process behind the photoreduction of graphene oxide,” *Nature Communications* 4: 2560 (2013) (<sup>†</sup>These authors contributed equally to this work)
1. **D. Badali**, C. C. Gradinaru, “The effect of Brownian motion of fluorescent probes on measuring nanoscale distances by Förster resonance energy transfer,” *Journal of Chemical Physics* 134(22): 225102 (2011)