

# Fred Kontur

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## EDUCATION

Ph.D., Physics, Rice University, Houston, TX, 2005  
M.S., Physics, Rice University, Houston, TX, 2000  
B.S., Physics, University of Pittsburgh, Pittsburgh, PA, 1997

## RELEVANT SKILLS

- Ultra-High Vacuum Systems
- Fiber-Amplifier Lasers
- Electrostatic Ion Optics
- Electron Detection Tools
- C++
- Web Programming – XHTML, CSS, JavaScript
- Data Analysis/Modeling

## PUBLICATIONS

### Articles:

Lancaster, J. C., F. J. Kontur, G. K. Walters and F. B. Dunning, “Dynamics of Temporary Negative Ion Formation in He<sup>+</sup> Ion Neutralization at an Al(100)/K Surface”, *Surface Science* **555** (2004) L133-L137.

Lancaster, J. C., F. J. Kontur, G. K. Walters and F. B. Dunning, “Dynamics of He<sup>+</sup> Ion Neutralization at Clean Metal Surfaces: Energy- and Spin-Resolved Studies”, *Physical Review B* **67** (2003) 115413.

Lancaster, J. C., F. J. Kontur, P. Nordlander, G. K. Walters and F. B. Dunning, “The Dynamics of He<sup>+</sup> Ion Neutralization at Metal Surfaces: Spin Dependent Studies”, *Nuclear Instruments and Methods in Physics Research Section B* **193** (2002) 656-660.

Lancaster, J. C., F. J. Kontur, G. K. Walters and F. B. Dunning, “Kinetic-Energy-Assisted He<sup>+</sup>-Ion Neutralization at a Solid CO<sub>2</sub> Surface”, *Physical Review A* **64** (2001) 054901.

Lancaster, J. C., F. J. Kontur, G. K. Walters and F. B. Dunning, “Source of Potential Systematic Error in Retarding-Potential Mott Polarimeters”, *Review of Scientific Instruments* **70** (1999) 3186-3187.

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Bixler, D. L., J. C. Lancaster, F. J. Kontur, R. A. Popple, F. B. Dunning and G. K. Walters, "Improved Low-Energy, Electron-Spin-Polarized  $^4\text{He}^+$  Ion Source", *Review of Scientific Instruments* **70** (1999) 240-241.

Bixler, D. L., J. C. Lancaster, F. J. Kontur, P. Nordlander, G. K. Walters and F. B. Dunning, "Use of Spin-Labeling Techniques to Probe the Dynamics of  $\text{He}^+$  Ion Neutralization at Clean Metal Surfaces", *Nuclear Instruments and Methods in Physics Research Section B* **157** (1999) 68-74.

Bixler, D. L., J. C. Lancaster, F. J. Kontur, P. Nordlander, G. K. Walters and F. B. Dunning, "Spin-Dependent Studies of the Dynamics of  $\text{He}^+$  Ion Neutralization at a Au(100) Surface", *Physical Review B* **60** (1999) 9082-9089.

## Theses:

Kontur, F. J., "The Dynamics of Spin-Polarized  $\text{He}^+$  Ion Neutralization at Clean Metal Surfaces and Van Der Waals Solids", Ph.D. Thesis, Rice University (2005).

Kontur, F. J., "Surface Studies Using Spin-Polarized Ion Neutralization Spectroscopy", M.S. Thesis, Rice University (2000).

## PRESENTATIONS

### Rice Quantum Institute Colloquia:

"The Dynamics of Spin-Polarized  $\text{He}^+$  Ion Neutralization at Mg Surfaces" (Talk), 2005

"The Dynamics of  $\text{He}^+$  Ion Neutralization at the Surface of Van Der Waals Solids" (Talk), 2004

"The Dynamics of  $\text{He}^+$  Ion Neutralization at Noble Gas Surfaces" (Poster), 2003

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“The Dynamics of He<sup>+</sup> Ion Neutralization at Clean Metal Surfaces: Energy- and Spin-Resolved Studies” (Talk), 2002

“Spin-Dependent Studies of Interactions between Polarized He<sup>+</sup> Ions and Surfaces” (Talk), 2000

“Spin-Dependent Studies of Interactions between Electron-Spin-Polarized He<sup>+</sup> Ions and Surfaces” (Talk), 1999

“Electron-Spin-Polarized <sup>4</sup>He<sup>+</sup> Ion Source to Study Ion-Surface Interactions” (Talk), 1998

## **American Physical Society Division of Atomic, Molecular and Optical Physics Conferences:**

“The Dynamics of He<sup>+</sup> Ion Neutralization at the Surface of Van Der Waals Solids” (Poster), 2004

“Spin-Dependent Studies of Interactions between Electron-Spin-Polarized He<sup>+</sup> Ions and Surfaces” (Poster), 2003

“The Dynamics of He<sup>+</sup> Ion Neutralization at Surfaces” (Poster), 2002

“Spin-Dependent Studies of He<sup>+</sup> Ion Neutralization at Surfaces” (Poster), 2001

“Spin-Dependent Studies of Interactions between Polarized He<sup>+</sup> Ions and Surfaces” (Poster), 2000

“Spin-Dependent Studies of the Dynamics of He<sup>+</sup> Ion Neutralization at Surfaces” (Poster), 1999

## **Thesis Defenses, Rice University:**

“The Dynamics of Spin-Polarized He<sup>+</sup> Ion Neutralization at Clean Metal Surfaces and Van Der Waals Solids” (Ph.D. Defense), 2005

“Surface Studies Using Spin-Polarized Ion Neutralization Spectroscopy” (M.S. Defense), 2000

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## TEACHING EXPERIENCE

- Laboratory Instructor, Introductory Physics for Biologists and Pre-meds, 1998-2000
- Laboratory Instructor, Introductory Physics for Engineers and Architects, 2001
- Award Certificate for Participation in 8 or more Rice University Teaching Workshops for Current and Future Teachers, 2001
- Tutorial Instructor, Introductory Physics for Engineers and Architects, 2000-2002
- Tutorial Instructor, Introductory Physics for Biologists and Pre-meds, 2004
- Head Tutorial Instructor, Introductory Physics for Biologists and Pre-meds, 2005

## AWARDS

- “Best of Session Presentation Award”, Rice Quantum Institute Colloquium, 2005
- “Outstanding Graduate Student Teacher Award”, Rice University Physics Department, 2002

## EXTRACURRICULAR ACTIVITIES

- Acted in 5 different productions of “BakerShake”, the annual Rice University Shakespeare production, 1999-2000, 2002-2004
- 3 time director in PLAY, a 24-hour event in which plays are written, rehearsed and performed over the course of 1 day, 2001-2003

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- Produced “Free Will and Wanton Lust” by Nicky Silver, a full-length play which received very favorable reviews in both the Rice University student newspaper and a Houston newsweekly, 2001
- DJed for the Rice University student radio station, KTRU, 2001-2003
- Program director of KTRU, 2002-2003
- 2 time stage manager of KTRU-sponsored musical stage at Houston Earth Day Festival, 2002-2003
- Film critic for KTRU News Program, 2002

## **ADDITIONAL WORK EXPERIENCE**

- Wendy’s Old-Fashioned Hamburgers (1995-1997) – Grillperson, Sandwich-Maker, Opener and Closer
- University of Pittsburgh Hillman Library (1994-1995) – Shelver and Check-Out Desk Worker
- Laboratory of Prof. W. J. Choyke (1994) – Student Assistant