

Conferencia: *Two-dimensionality, Polarity, and Strong Interactions in Oxide Nanostructures*

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Warren E. Picket

University of California - Davis

24/04/13

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Aula de Seminarios do
CIQUS

12:15 h

Máis información:
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XUNTA DE GALICIA

CONSELLERÍA DE CULTURA, EDUCACIÓN
E ORDENACIÓN UNIVERSITARIA

Curriculum Vitae: Warren E. Pickett

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Education

| | | | |
|-----------|-------|-------------------------|--|
| 1969 | B.S. | Physics, Mathematics | Wichita State University, Wichita Kansas |
| 1971 | M.S. | Physics | Wichita State University, Wichita Kansas |
| 1975 | Ph.D. | Physics | Stony Brook University, New York |
| 1975-1976 | | Postdoctoral Researcher | University of Bristol, England |
| 1976-1977 | | IBM Postdoctoral Fellow | UC Berkeley |
| 1977-1979 | | Postdoctoral Fellow | Northwestern University |

Appointments

| | |
|-----------|--|
| 2012-2013 | Visiting Professor, Baptist University of Hong Kong, Hong Kong |
| 2012-2013 | Visiting Professor, Graphene Research Center, National University of Singapore |
| 2012-2013 | Simons Foundation Fellow |
| 2008-2011 | Chair, Department of Physics, University of California Davis |
| 2003- | Distinguished Professor of Physics, University of California Davis |
| 1997-2003 | Professor, Department of Physics, University of California Davis |
| 1992-1997 | Senior Scientist, Naval Research Laboratory, Washington DC |
| 1991-1992 | Visiting Professor (sabbatical), Cavendish Laboratory, Cambridge, England |
| 1988-1992 | Supervisory Research Physicist, Naval Research Laboratory, Washington DC |
| 1983-1984 | Visiting Scientist (sabbatical), Daresbury Laboratory, Daresbury, England |
| 1979-1988 | Research Physicist, Naval Research Laboratory, Washington DC |

Research Activities

My research program focuses on achieving a fundamental understanding of physical properties and behavior of condensed matter, based on a description of the dynamics of electrons at the atomic or nanoscopic level. Materials attracting major attention include superconductors, magnetic materials, strongly correlated electron systems such as “heavy fermion” materials, and interfaces and surfaces. Recent studies include topological insulators and atomically thin, hence two dimensional, layers in which the charge carriers behave as relativistic massless particles when traveling in one direction, and as conventional electrons with mass in the perpendicular direction.

My group was one of the first to set up a research computer cluster at UCD (a. 1998), and our investigations continue to be highly computational in nature. Electronic systems are treated fully quantum mechanically, based on density functional theory rather than aiming to deal directly with full many-electron wavefunctions. My group currently uses a ~ 700 core cluster shared with two other faculty members, and has access to DOE supercomputers at LBNL’s National Energy Research Computing Center and at BNL’s Center for Functional nanomaterials.

Recent Service to the Community (selected examples)

Chair line, Division of Condensed Matter Physics, American Physical Society, 2008-2012

Scientific Advisory Board, Max Planck Society, 2000 – 2011. Two six-year terms.

Scientific Advisory Board, DOE Ames Laboratory, 2002, 2004

Editor, *Journal of the Physics and Chemistry of Solids*, Elsevier, 2001 – 2005

Editorial Board, *Journal of Superconductivity*, 1989 – 2005

Editorial Advisor, *Chemical Design Automation News*, 1993-1998

Member/Chair, Rahman Prize Committee, American Physical Society, 1995, 1996

Councillor, Division of Computational Physics, American Physical Society, 1996-1999

Major Commitments in Recent Years

- Chair of Physics Department, UC Davis, July 2008 through August 2011
- American Physical Society. For the Division of Condensed Matter Physics I served during 2008-2012 in the consecutive positions of Vice Chair, Chair Elect, Chair, Past Chair. As the largest division of APS, DCMP takes the lead in the organization of the APS March Meeting, annually the largest conference for physicists. I served as Program Chair of the 2011 March Meeting, where there were approximately 10,000 attendees and 10,000 talks presented.
- In the past 5-6 years I have served on External Review Committees for Physics Programs at three universities – Iowa State University, Arizona State University, Oregon State University – and at three national labs LANL, LBNL, and ANL.

Collaborators within the last 48 Months

D. H. A. Blank, Twente; A. Brinkman, Twente; H. Eschrig, Technical University, Dresden; C. S. Fadley, LBNL; G. Galli, UC Davis; F. Gygi, UC Davis; K. Haule, Rutgers; G. Kotliar, Rutgers; J. Kuneš, University of Augsburg; W. Ku, Brookhaven National Laboratory; A. Kutepov, Rutgers; A. Lazicki, LLNL; S. Lebegue, CNRS Nancy; J. C. Lee, Sungkyunkwan University; A. I. Liechtenstein, University of Hamburg; G. G. Lonzarich, Cambridge; A. K. McMahan, Lawrence Livermore National Laboratory; J. N. Mitchel, ANL; R. Pentcheva, University of Munich; V. Pardo, Santiago de Compostela; F. Ronning, LANL; S. Y. Savrasov, UC Davis; R. T. Scalettar, UC Davis; M. Scheffler, Berlin; R. R. P. Singh, U. C. Davis; J. D. Thompson, LANL; D. A. Tompsett, London; X. X. Xi, Penn State University; Q. Yin, Rutgers; E. R. Ylvisaker, UC Davis; C. S. Yoo, Washington State University.

Graduate and Postdoctoral Advisors

| Advisor | Person | Institution |
|----------------------|-------------------|-------------------------|
| Ph.D. Advisor | Philip B. Allen | Stony Brook University |
| Postdoctoral Advisor | Balazs L. Györfy | University of Bristol |
| Postdoctoral Advisor | Marvin L. Cohen | UC Berkeley |
| Postdoctoral Advisor | Arthur J. Freeman | Northwestern University |

Mentoring

Postdocs Supervised

At the Naval Research Laboratory: David J. Singh, Steven C. Erwin, Brian N. Davidson, Gerhard E. Engel, E. C. (Chris) Ethridge

At UC Davis: Ruben Weht, Alessandro Filippetti, Alexander B. Shick, Helge Rosner, Wei Ku, Jan Kuneš, Meichun Qian, Karan Aryanpour, Prabuddha Chakraborty, Simone Chiesa, Kwan-Woo Lee, Quan Yin, Victor Pardo, Erik R. Ylvisaker, Hasan Sadat Nabi, Hahnbidt B. Rhee.

Graduate students mentored: Daniel Lattimore (MS, 1999), Joonhee M. An (PhD, 2001), Michelle D. Johannes (PhD, 2003), Kristopher E. Andersen (PhD, 2005), Taes-Seong Jeong (PhD, 2005), Kwan-Woo Lee (PhD, 2006), Deepa Kasinathan (PhD, 2006), Brian Maddox (PhD, 2006), Amy Lazicki (PhD, 2007), Alan Kyker (PhD, 2007), Erik Ylvisaker (PhD, 2008), Zhiping Yin (PhD, 2009), Hahnbidt B. Rhee (PhD, 2012), Swapnil Banerjee (PhD, 2012).

Current graduate students: Amandeep Kaur, Brian N. Neal, Yundi Quan.

Honors and Awards

Simons Foundation Fellow, 2012-13

Elected Fellow, Institute of Physics (U.K.), 2011

Alexander von Humboldt Professorship, 2005-06

Named Distinguished Professor of Physics, UC Davis, 2003

NRL Sigma Xi Technical Achievement Award in Pure Science, 1993

Alan Berman Research Publication Awards, NRL, 1983, 1988, 1989, 1992

E. O. Hulbert Award, Naval Research Laboratory, 1990

2nd Prize, IBM Supercomputing Competition, 1990

Elected Fellow, American Physical Society, 1989

Top Ten Technology Talents of 1989, *Washington Technology*

Scientific Achievement Award, Washington Academy of Sciences, 1985

Current Grants: Warren E. Pickett

| Agency | Title | Funding | Effort (mo.) | Period |
|--------|--|---------|-----------------|-------------|
| NSF | Electron Pairing in Doped Insulators | \$360K | 0.5 | 08/12-07/15 |
| DOE | Spin-Orbit Tailoring of Materials Properties | \$360K | 0.5 | 02/13-01/16 |
| Simons | Simons Foundation Fellow: Sabbatical Support | \$121K | 0.0 | 07/12-06/13 |
| DOE | SSAAP: High Z Metal Oxides at High Pressure ¹ | \$348K | 0.5 | 09/12-08/15 |
| DOE | Computational Materials Science Network ² | \$840K | 0.5 | 10/10-09/13 |
| DOE | SciDAC-e: Algorithms, Codes ... Energy Applications ³ | \$1100K | 0.5 | 07/10-09/13 |
| NSF | PIF: Quantum Monte Carlo: Multicore Processors ¹ | \$675K | 0.5 | 10/10-09/13 |

¹One of 3 investigators.

²One of 7 investigators.

³One of 4 investigators.

Recently completed grants are listed at <http://yclept.ucdavis.edu/Grants.html>

Research Output, as of Winter 2013

Web of Science: h-index=60, 14970 citations, mean: 39 citations/article, 37 papers with 100+ citations

Google Scholar: h-index=66, 16880 citations, 253 papers with 10+ citations

Approximately 430 publications. Listing at *http://yclept.ucdavis.edu/research_output.html*

Approximately 160 invited conference presentations.

Approximately 135 seminars and colloquia presented at universities and laboratories.