

Darwin Lee Boyd, Ph.D.

Assistant Professor
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Kent Campus
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Education

Kent State University - Ph.D. Major: Physics Minor: None Mössbauer studies of 1) some iron (III) spin crossover systems and 2) a cold cholesteric liquid crystal	1991
Kent State University - M.A. Major: Physics Minor: None	1988
Kent State University - B.S. Major: Physics Minor: None	1982

Higher Education Work Experience

ASSISTANT PROFESSOR TT KENT STATE UNIVERSITY	8/1998 – Present
NASA-ASEE SUMMER FACULTY FELLOW NASA GLENN RESEARCH CENTER	6/1999 – 8/1999
NASA-ASEE SUMMER FACULTY FELLOW NASA LEWIS RESEARCH CENTER	6/1998 – 8/1998
ASSISTANT PROFESSOR NTT KENT STATE UNIVERSITY	8/1997 – 8/1998
NASA-ASEE SUMMER FACULTY FELLOW NASA LEWIS RESEARCH CENTER	6/1997 – 8/1997
PART TIME TEMPORARY INSTRUCTOR KENT STATE UNIVERSITY	9/1996 – 5/1997
NASA-ASEE SUMMER FACULTY FELLOW NASA LEWIS RESEARCH CENTER	6/1996 – 8/1996

PART TIME TEMPORARY INSTRUCTOR 9/1995 – 5/1995
KENT STATE UNIVERSITY

PART TIME TEMPORARY INSTRUCTOR 9/1994 – 12/1994
KENT STATE UNIVERSITY

GRADUATE ASSISTANT 1983 – 1989
KENT STATE UNIVERSITY

Professional Experience

SELF-EMPLOYED PART TIME CONTRACTOR 8/1997 – 5/1998
NASA LEWIS RESEARCH CENTER

SELF-EMPLOYED PART TIME CONTRACTOR 12/1996 – 5/1997
NASA LEWIS RESEARCH CENTER

SELF-EMPLOYED PART TIME CONTRACTOR 6/1995 – 4/1996
NASA LEWIS RESEARCH CENTER

SELF-EMPLOYED CONTRACTOR 6/1989 – 8/1989
UNIVERSAL ENERGY SYSTEMS

SELF-EMPLOYED CONTRACTOR 6/1988 – 8/1988
UNIVERSAL ENERGY SYSTEMS

Projects and Theses

Masters Thesis

Shejale, Aparna, Remotely operated radiation detector control system, Advisor, 2005

Publications

Journal Articles, Refereed

Title of paper: Ionizing Radiation and Homeland Security Teacher Education

All authors: Edwin M. Filppi, Darwin L. Boyd, and Roberto M. Uribe

Bibliographic reference: Thirteenth Annual Meeting of the Council on Ionizing Radiation Measurements and Standards, NIST, Gaithersburg MD, October 25-27, 2004.

Title of paper: Surface Chemistry of Perfluoro Ethers: An Infrared Study of the Thermal Decomposition of $(C_2F_5)_2O$ on Al_2O_3

All authors: L. M. Ng, E. Lyth, M. V. Zeller, and D. L. Boyd

Bibliographic reference: Langmuir 11, 127-135 (1995)

Title of paper: The Anomalous Mössbauer Spectra of Tris (Diethanoldithiocarbamato) Iron(III): Solvate Effects

All authors: Darwin L. Boyd, Norman V. Duffy, Andrew Felczan, Edward Gelerinter, David L. Uhrich, George A. Katsoulos, and Julia B. Zimmerman

Bibliographic reference: Inorganica Chimica Acta 191, 39-47 (1992)

Title of paper: Mössbauer Spectra of Tris (Diorganothioselenocarbamato) and Tris (Diorganodiselenocarbamato) Iron(III) Complexes

All authors: Wolfgang Dietzsch, Norman V. Duffy, Darwin Boyd, David L. Uhrich, and Ekk Sinn

Bibliographic reference: Inorganica Chimica Acta 169, 157-160 (1990)

Title of paper: Iron Thioselenocarbamates

All authors: W. Dietzsch, D. L. Boyd, D. L. Uhrich, and N. V. Duffy

Bibliographic reference: Inorganica Chimica Acta 121, 19-22 (1986)

Title of paper: A Tin-119 and Iron-57 Mössbauer Effect Study of the Crystalline Phase of 7bar S5

All authors: D. G. Todoroff, R. Marande, D. Boyd, and D. L. Uhrich

Bibliographic reference: Molecular Crystals and Liquid Crystals 95, 367-371 (1983)

Other

Title of report: Evaluation of the Flexibility of Insulating Gloves Used by the Electric Utility Industry

All authors: Darwin L. Boyd

Organization submitted to: The White Rubber Corporation

Date: 2005

Title of report: Characterization of In-Situ BN Interface Formed by Nitridation of Nextel 312

All authors: Frances I Hurwitz, John Riehl, John Madsen, Terry R. McCue, Darwin L. Boyd and Mary V. Zeller

Organization submitted to: National Aeronautics and Space Administration

Report number: CASI Document ID 20000004784

Date: 1999

Title of report: Thermogravimetric Study of Oxidation of a PdCr Alloy Used for High-Temperature Sensors

All authors: Darwin L. Boyd and Mary V. Zeller

Organization submitted to: National Aeronautics and Space Administration

Report number: NASA Technical Memorandum 106473

Date: 1994

Title of report: Auger Electron Spectroscopy Study of Oxidation of a PdCr Alloy Used for High-Temperature Sensors

All authors: Darwin L. Boyd, Mary V. Zeller, and Carlos Vargas-Aburto

Organization submitted to: National Aeronautics and Space Administration
Report number: NASA Technical Memorandum 106212
Date: 1993

Presentations

National Refereed

Title of presentation: Control Problem for the Manufacturing/Mechatronics Curriculum
All authors: Darwin Boyd and Shin-Min Song
Meeting name: 2016 ATMAE Annual Conference
Place and date: Orlando, FL, November 2-5, 2016

Title of presentation: Development of Student Robotics Club in support of Applied Engineering Technology and Aeronautics Programs
All authors: Shin-Min Song, Darwin Boyd, and Dan Kish
Meeting name: 2015 ATMAE Annual Conference
Place and date: Sheraton Station Square Pittsburgh, PA, November 11-14, 2015

National Non-Refereed

Title of presentation: Transverse-Flexure-Induced Fiber Debonding in SCS-6/Ti-24-11
All authors: Louis J. Ghosn, Darwin L. Boyd, and Jeffrey I. Eldridge
Meeting name: HITEMP Review 1997
Place and date: Cleveland Airport Marriott, April 29-30, 1997

State Non-Refereed

Title of presentation: Method for Estimating Reliability of Fuel Cell Balance of Plant
All authors: Mark Prochko, Darwin Boyd, Michael Czayka, Donald Coates, Yuriy Tolmachev, and Jain Jacob
Meeting name: Ohio Fuel Cell Coalition 2010 Symposium Poster Competition
Place and date: Great Lakes Science Center, May 6-7, 2010

Title of presentation: Researching Alternative Processes for Platinum Loading of PEFC Fuel Cells
All authors: Mark Prochko, Challa Bekele, Donald Coates, Darwin Boyd, and Yuriy Tolmachev
Meeting name: Ohio Fuel Cell Coalition Symposium 2009 Poster Competition
Place and date: Kent State University Stark Campus Conference Center, May 27-28, 2009

Title of presentation: Effect of BN Fiber Coating Composition on Mechanical Behavior of Hi-Nicalon SiC-Reinforced Celsian Composites
All authors: Jeffrey, I. Eldridge, Narottam P. Bansal, and Darwin L. Boyd
Meeting name: Fifteenth North Coast Symposium, American Vacuum Society, Ohio Chapter
Place and date: Case Western Reserve University, June 3, 1998

Title of presentation: AES, SEM, and Thermal Studies of the Oxidation of a PdCr Alloy
Used for High Temperature Sensors

All authors: D. L. Boyd, J. F. Lei, and M. V. Zeller

Meeting name: Eighth North Coast Symposium, American Vacuum Society, Ohio
Chapter

Place and date: Case Western Reserve University, June 5, 1991

Local Non-Refereed

Title of presentation: Auger Electron Spectroscopy of a Ceramic Matrix Composite
Material

All authors: Darwin L. Boyd

Meeting name: Celebration of Scholarship

Place and date: Kent State University, 1998

Service to the Profession

University

Member Chairs and Directors Council

Spring 2006 – Spring 2011
Summer 2012 – Summer 2013

Member University Priorities and Budget Advisory Committee (UPBAC)

Fall 2004 – Spring 2007

Member Strategic Planning Steering Committee

2003 – 2004

College

Co-advisor Kent State Robotics

Spring 2014 - Present

Chair AET search committee

Fall 2012 – Summer 2013

Co-chair bioengineering search committee

Fall 2011 – Fall 2012

Chair College Steering Committee

Spring 2010 – Summer 2010

Chair College Curriculum Committee

Fall 2009 – Spring 2010

Member search committee, position 250220

Spring 2006

Chair search committee, position 252250

Spring 2006

Member search committee, position 252750

Spring 2005

Chair Graduate Faculty Committee

Fall 2004 – Spring 2006

Member search committee, position 252230KSW

Summer 2004

Member search committee, position 252070KSW	Spring 2004
Member Graduate Faculty Committee	Fall 2003 – Present
Member College Curriculum Committee	Fall 2003 – Summer 2015
Member College Advisory Committee	Fall 2003 – Spring 2014
Member Regional Campus Faculty Affairs Council (RCFAC)	Fall 2003 – Fall 2004
Technology Library Representative	Fall 2003 – Summer 2006

Department

Co-chair Mechatronics/Mechanical Engineering Technology/Applied Engineering and Technology Management industrial advisory committee	Fall 2013 – Summer 2014
Coordinator Applied Science and Technology Program Area	Spring 2006 – Spring 2011 Summer 2012 – Summer 2013

Other

Scorekeeper 2019 First Tech Challenge, Kent State Regional	February 1, 2, 2019
Judge 2018 First Tech Challenge, Kent State Regional	February 2, 3, 2018
Judge 2017 First Tech Challenge, Kent State Regional	February 3, 4, 2017
Judge 2016 First Tech Challenge, Kent State Regional	February 5, 6, 2016
Judge 2012 Ohio Fuel Cell Symposium, Student Poster Competition	May 1, 2, 2012
Judge 2011 Ohio Fuel Cell Symposium, Student Poster Competition	April 18, 19, 2011
Judge 2007 Akron Regional Science Olympiad	March 10, 2007
Judge 2006 Akron Regional Science Olympiad	March 4, 2006
Judge 2005 Akron Regional Science Olympiad	March 19, 2005
Judge 2004 Akron Regional Science Olympiad	March 13, 2004

Proposals and Grants

Proposal Title: **Donation from Rockwell Automation**
Date Submitted:
Author(s): Darwin Boyd
Agency: Rockwell Automation
Amount Requested: \$48,271.39
Role: Primary Contact
Outcome: Received
Amount Awarded: **\$48,271.39** (PLC and Mechatronics laboratory equipment)
Project Period: Spring 2021

Proposal Title: **Student-Innovative-Creative-Hands-on Project (SICHOP)
– NASA RMC: Lunabotics**
Date Submitted: April 2020
Author(s): Darwin Boyd (PI)
Agency: Ohio Space Grant Consortium
Amount Requested: \$5,000
Role: Principal Investigator
Outcome: Received
Amount Awarded: **\$5,000**
Project Period: May 2020 – February 2021

Proposal Title: **Student-Innovative-Creative-Hands-on Project (SICHOP)
– NASA Robotic Mining Competition**
Date Submitted: March 2019
Author(s): Darwin Boyd (PI) and Simon Song (Co-PI)
Agency: Ohio Space Grant Consortium
Amount Requested: \$5,000
Role: Principal Investigator
Outcome: Received
Amount Awarded: **\$5,000**
Project Period: January – December 2019

Proposal Title: **Student-Innovative-Creative-Hands-on Project (SICHOP)
– NASA Robotic Mining Competition**
Date Submitted: March 2018
Author(s): Simon Song (PI) and Darwin Boyd (Co-PI)
Agency: Ohio Space Grant Consortium
Amount Requested: \$5,000
Role: Co-Principal Investigator
Outcome: Received
Amount Awarded: **\$5,000**
Project Period: January – May 2018

Proposal Title: **Student-Innovative-Creative-Hands-on Project (SICHOP)
– NASA Robotic Mining Competition**
Date Submitted: March 2017
Author(s): Darwin Boyd (PI) and Simon Song (Co-PI)
Agency: Ohio Space Grant Consortium
Amount Requested: \$5,000
Role: Principal Investigator
Outcome: Received
Amount Awarded: **\$5,000**
Project Period: January – May 2017

Proposal Title: **Student-Innovative-Creative-Hands-on Project (SICHOP)
– NASA Robotic Mining Competition**
Date Submitted: March 2016
Author(s): Simon Song (PI) and Darwin Boyd (Co-PI)
Agency: Ohio Space Grant Consortium
Amount Requested: \$5,000
Role: Co-Principal Investigator
Outcome: Received
Amount Awarded: **\$5,000**
Project Period: January – May 2016

Proposal Title: **Donation from Rockwell Automation**
Date Submitted:
Author(s): Darwin Boyd
Agency: Rockwell Automation
Amount Requested: \$30,000
Role: Primary Contact
Outcome: Received
Amount Awarded: **\$30,000** (Miscellaneous PLC/Mechatronics laboratory equipment)
Project Period: Spring 2014

Proposal Title: **Donation from Rockwell Automation**
Date Submitted:
Author(s): Darwin Boyd
Agency: Rockwell Automation
Amount Requested: \$750,000
Role: Primary Contact
Outcome: Received
Amount Awarded: **\$750,000** (Miscellaneous PLC/Mechatronics laboratory equipment)
Project Period: Spring 2013

Proposal Title: **2013 Fulbright Visiting Scholar Program for Iraq and Libya**
Date Submitted:
Author(s): I. Richmond Nettey, Augustine Samba, Darwin Boyd
Agency: U.S. Department of State, U.S. Embassy – Baghdad
Amount Requested: Prime award amount: \$2,000,000. Kent State University sub award amount: \$117,000
Role: Primary Contact
Outcome: Awarded
Amount Awarded: **Prime award amount: \$2,000,000. Kent State University sub award amount: \$117,000**
Project Period: Spring 2013 – September 7, 2013

Proposal Title: **Great Lakes Fuel Cell Education Partnership**
Date Submitted:
Author(s): Darwin Boyd
Agency: National Science Foundation via Stark State College (lead institution)
Amount Requested: \$6,441
Role: PI for Kent State University
Outcome: Awarded
Amount Awarded: **\$6,441** (Kent State's Portion)
Project Period: Fall 2012 – Spring 2013

Proposal Title: **Donation from Rockwell Automation**
Date Submitted:
Author(s): Darwin Boyd
Agency: Rockwell Automation
Amount Requested: \$150,000
Role: Primary Contact
Outcome: Received
Amount Awarded: **\$150,000**
Project Period: 2011-2012

Proposal Title: **Alternative Energy Fuel Cell Power Generator Phase II**
Date Submitted:
Author(s): Donald Coates, Darwin Boyd, Michael Czayka,
Agency: Battelle Memorial Institute
Amount Requested: \$160,000
Role: Co-Principal Investigator
Outcome: Awarded
Amount Awarded: **\$160,000**
Project Period: July 2010 – June 2011

Proposal Title: **Scanning Auger Microprobe Loan**
Date Submitted: November 2009
Author(s): Darwin Boyd
Agency: NASA Glenn Research Center
Amount Requested: \$633,298
Role: Principal Investigator
Outcome: Received January 2010
Amount Awarded: **\$633,298**
Project Period: January 2010 –

Proposal Title: **Alternative Energy Fuel Cell Power Generator**
Date Submitted:
Author(s): Donald Coates, Yuriy Tolmachev, and Darwin Boyd
Agency: Battelle Memorial Institute
Amount Requested: \$200,065
Role: Co-Principal Investigator
Outcome: Awarded
Amount Awarded: **\$200,065**
Project Period: October 2008 – February 2010

Proposal Title: **Third Generation of PEFC Catalytic Layers - Operating Funds**
Date Submitted:
Author(s): Yuriy Tolmachev, Donald Coates, and Darwin Boyd
Agency: Ohio Department of Development
Amount Requested: \$299,548
Role: Co-Principal Investigator
Outcome: Awarded
Amount Awarded: **\$299,548**
Project Period: May 2008 – May 2010

Proposal Title: **Parker Hannifin Chainless Challenge**
Date Submitted: May 2004
Author(s): Donald Coates and Darwin Boyd
Agency: Parker Hannifin
Amount Requested: \$3,000
Role: Co-Advisor
Outcome: Awarded
Amount Awarded: **\$3,000**
Project Period: September 2007 – July 2008

Proposal Title: **Evaluation of the Flexibility of Insulating Gloves Used by the Electric Utility Industry**
Date Submitted: May 2004
Author(s): Darwin L. Boyd
Agency: The White Rubber Corporation
Amount Requested: \$12,003.39
Role: Principal Investigator
Outcome: Awarded
Amount Awarded: **\$12,003.39**
Project Period: June 2004 – May 2005

Proposal Title: **X-ray Photoelectron Spectrometer Acquired Via the Stevenson Wydler Act Program**
Date Submitted: May 2003
Author(s): Darwin L. Boyd
Agency: NASA Glenn Research Center
Amount Requested: \$100,000
Role: Principal Investigator
Outcome: Awarded
Amount Awarded: **\$100,000**
Project Period: June 2003 –

Proposal Title: **Moulton Scholar Program “Digital Video in Technology Instruction”**
Date Submitted: April 1, 2003
Author(s): Darwin L. Boyd
Agency: Kent State University Faculty Professional Development Center
Amount Requested: \$2,000
Role: Moulton Scholar
Outcome: Awarded
Amount Awarded: **\$2,000**
Project Period: June 2003 – August 2003

Proposal Title: **Learning Community Proposal “T³ – Technology Tools for Tomorrow”**
Date Submitted: November 2001
Author(s): Darwin Boyd, Isaac Nettey, Lowell Zurbuch
Agency: Kent State University Residence Services
Amount Requested: \$49,900
Role: Primary Coordinator
Outcome: Not Funded
Amount Awarded: **\$0**
Project Period: 2002 – 2003 (proposed)

Proposal Title:	Request for Foundation Grant “DR – Deneb Robotics Virtual NC Software Gift Program”
Date Submitted:	January 1999
Author(s):	D. L. Boyd and C. A. Martin
Agency:	SME Education Foundation
Amount Requested:	\$45,000 in-kind gift
Role:	Project Director
Outcome:	Awarded June 3, 1999
Amount Awarded:	\$45,000 in-kind gift
Project Period:	June 1999 – May 2000