

# CURRICULUM VITAE

**Dušan Danilović, Ph.D.**

Senior Lecturer/Assistant Research Professor  
Communication of Science and Technology  
Department of Physics and Astronomy  
Vanderbilt University

tel: 609.731.2799 | office: Stevenson Center 6721, Vanderbilt University  
e-mail: [dusan.s.danilovic@vanderbilt.edu](mailto:dusan.s.danilovic@vanderbilt.edu) | [dusandanilovic@gmail.com](mailto:dusandanilovic@gmail.com)

## education

Post-doc. 2012-15 **Ames National Laboratory, Iowa State University, Ames, Iowa**

Physics

Laboratory of Prof. Joseph Shinar

Specialization:

-*Organic Light Emitting Devices (OLEDs)*

-*Optically Detected Magnetic Resonance (ODMR) of Organic Materials*

Ph.D. 2010 **Temple University, Philadelphia, PA**

Physics [Condensed State Physics, subfield Molecular Magnetism]

Dissertation:

*Investigation of Magnetic Properties in the Case of Three Families of 1D Magnets:*

*$M(II)A(4,4'-bipyridine); M=Fe, Co, Ni, Cu; A=Cl<sub>2</sub>, (N<sub>3</sub>)<sub>2</sub>, (ox)$*

Committee:

Prof. Tan Yuen (advisor); Prof. Chyn-Long Lin; Prof. Peter Riseborough; Prof. Jing Li; Prof. Ted Buckhardt; Prof. Frank Spano

M.A. 2004 **Temple University, Philadelphia, PA**

Physics

B.Sc. 2000 **Faculty of Mathematics, Department of Astronomy and Astrophysics, University of Belgrade, Serbia**

Astrophysics

## academic experience

2022-present **Senior Lecturer/Assistant Research Professor**

Communication of Science and Technology

Department of Physics and Astronomy

Vanderbilt University, Nashville, TN

2015-2021 **Lecturer**

Department of Physics and Astronomy

College of Liberal Arts and Sciences, Iowa State University, Ames, IA

2015-2021 **Instructor**

Astronomy

Des Moines Area Community College, West Des Moines, IA

2019 (spring) **Instructor**

Physics – Quantum Mechanics

Simpson College, Indianola, IA

2012-15 **Post-Doc**

Department of Physics and Astronomy, College of Liberal Arts and Sciences, ISU, Ames, IA

2011-12 **Instructor**

Physics and Astronomy

Wayne Community College, Goldsboro, NC

2010-12 **Instructor**

Physics and Astronomy

Pitt Community College, Greenville, NC

2009-10 **Teaching Assistant**

Physics

- 2008-09 Temple University, Philadelphia, PA  
**Instructor**  
Physics and Astronomy
- 2008 (summer) Pitt Community College, Greenville, NC  
**Co-instructor (with Prof. Z. Dziembowski)**  
Physics
- 2002-08 Temple University, Philadelphia, PA  
**Teaching Assistant**  
Physics (Calculus and Algebra Based), Electromagnetism  
Temple University, Philadelphia, PA

## SCHOLARSHIP

---

- 2012-2021 Ames National Laboratory, Ames, IA, Research Associate in Physics Laboratory of Dr. Joseph Shinar
- Nine years of experimental and theoretical experience in the field of organic light emitting devices:
- Production and optical characterization of Organic Light Emitting Devices (OLEDs): Glove Box, Solution Processing, Spin-coating, Thermal/Solvent/Electrical Annealing, Optimization, Encapsulation, Testing, Thermal Vapor Deposition, IV (Light & Dark), Luminance, Integrating Sphere
  - Fundamental studies, notably optically and electrically detected magnetic resonance (ODMR and EDMR, respectively) of  $\pi$ -conjugated materials & organic light-emitting diodes (OLEDs)
  - Fundamental studies focus on the dynamics of polarons, singlet excitons, triplet excitons, bipolarons, and intrinsic defects, and their effect on thin film and OLED properties
- 2004-2011 Temple University, Philadelphia, PA, Physics Laboratory of Dr. Lin and Dr. Yuen; and Rutgers University, New Brunswick, NJ, Chemistry Laboratory of Dr. Li
- Seven years of experimental and theoretical experience in the field of condensed matter physics:
- Programming and use of Quantum Design SQUID magnetometer and cryogenic experimental equipment, HP & Lakeshore instruments
  - Programming and use of Mössbauer spectroscopy
  - Heat capacity measurements
  - Structure determination by using x-ray powder refractometer RIGAKU D/M-2200T automated diffraction system (ultima+) and JADE software packet
  - Thermogravimetric analysis (TGA) by using computer-controlled TA instrument analyzer TGAQ50
  - Production of novel inorganic-organic hybrid networks via single crystal growth and hydrothermal routes under supercritical conditions – in addition to the re-production of known compounds synthesized five entirely new compounds
  - Use of UV-VIS-NIR spectrophotometer in determining chemical composition of produced inorganic-organic compounds
  - Film production and production of high-resistant heaters for homebuilt heatcapacity probe

## PUBLICATIONS

### journal articles

#### Referred and peer reviewed published papers

--“**Bright Deep Blue TADF OLEDs: The Role of Triphenylphosphine Oxide in NPB/TPBi:PPH<sub>3</sub>O Exciplex Emission**”  
*Adv.Opt.Mater.* 8 (2020)

*impact factor 8.3*

Author(s): Chamika Hippola, **Dusan Danilovic**, Ujjal Bhattacharjee, Cesar Perez-Bolivar, KA Niradha Sachinthani, Toby L Nelson, Pavel Anzenbacher, Jacob W Petrich, Ruth Shinar, Joseph Shinar, Iowa State University of Science and Technology (United States)

--“**Comparative analysis of magnetic resonance in the polaron pair recombination the triplet exciton-polaron quenching models**” *Phys.Rev. B* 97 (2018)

*impact factor 3.718*

Author(s): Vagharsh Mkhataryan Ames Laboratory; **Dusan Danilovic**, Chamika Hippola, Joseph Shinar, Iowa State University of Science and Technology; Mikhail Raikh University of Utah (United States)

--“**Structural, Magnetic, and Thermodynamic Properties of Three Metal-Organic Frameworks  $M(N_3)_2(4,4'$ -bpy),  $M=Ni, Co, and Cu$** ” *J.Appl.Phys* 111 (2012)

*impact factor 2.259*

Author(s): Youcef Hamida, **Dusan Danilovic**, Tan Yuen, Chyan-Long Lin, Temple University (United States)

--“**Magnetic Specific Heat Studies of Two Ising  $\frac{1}{2}$  Chain Systems  $M(N_3)_2(4,4'$ -bpy)**” *J.Appl.Phys* 111 (2012)

*impact factor 2.259*

Author(s): Youcef Hamida, **Dusan Danilovic**, Tan Yuen, Chyan-Long Lin, Temple University (United States)

-- “**Analysis of the Exchange Interactions in Three Metal-Organic Coordination Networks possessing 1D magnetism**”

*J.Appl.Phys.* 107 (2010)

*impact factor 2.259*

Author(s): **Dusan Danilovic**, Youcef Hamida, Tan Yuen, Chyan-Long Lin, Temple University (United States), Jing Li, Rutgers, the State University of New Jersey (USA)

-- “**Magnetic Properties of a Metal-Organic Porous Network  $[Ni_2(BODC)_2(TED)]$** ” *J.Appl.Phys.* 103 (2008)

*impact factor 2.259*

Author(s): **Dusan Danilovic**, Tan Yuen, Chyan-Long Lin, Temple University (United States), Jing Li, Rutgers, the State University of New Jersey (USA)

-- “**Magnetic Properties of an Fe(II) meso-tetra(4-pyridyl)porphyrin network**” *J.Appl.Phys.* 101 (2007)

*impact factor 2.259*

Author(s): **Dusan Danilovic**, Tan Yuen, Chyan-Long Lin, Temple University (United States), Jing Li, Rutgers, the State University of New Jersey (USA)

## Book chapters

### Referred and peer reviewed

-- “**Modeling the Sunlight Illumination of the Church at Studenica Monastery,**” in *Natural Light in Medieval Churches*, eds. Vladimir Ivanovici and Alice Isabella Sullivan [East Central and Eastern Europe in the Middle Ages, 450-1450] (Leiden: Brill, forthcoming 2023)

Author(s): Travis Yeager, Jelena Bogdanović, Leslie Forehand, **Dušan Danilović**, Magdalena Dragović, Debanjana Chatterjee, Jacob Gasper, Marko Pejić, Aleksandar Čučaković, Anastasija Martinenko, and Charles Kerton

### Non-Referred papers

-- “**Manganese line observation during Sun’s Eclipse**”, *Observation of Sun’s Eclipse on August 11<sup>th</sup> 1999* Compendium (1999) – single author

-- “**Byzantine Astronomy**” *Vasiona-Review of Serbian Astronomical Society* 6 (1999) – single author

## CONFERENCES / PRESENTATIONS / LECTURES

### conference papers

--2020 Nov. Freie Universität Berlin and Masaryk University Brno; Berlin, Germany

“**Modeling the Interior Sunlight Effects of Studenica Monastery**”

(with Travis Yeager, Jelena Bogdanović, Charles Kerton, Leslie Forehand, Jacob Gasper, Debanjana Chatterjee, Magdalena Dragović, Aleksandar Čučaković, Marko Pejić, and Anastasija Martinenko; presented by Travis Yeager)

Virtual Workshop: *Licht aus dem Osten? Natural Light in Medieval Churches Between Byzantium and the West* Invited for publication

--2020 Sep. Belgrade, Serbia, MoNGeometrija 2020: *Dimensions Reflected*

“**Parametric Modeling of the Church in the Studenica Monastery**”

<https://www.youtube.com/watch?v=jkm9eC4hmpo&feature=youtu.be>

- (with Charles Kerton, Jelena Bogdanović, Travis Yeager, Jacob Gasper, Magdalena Dragović, Aleksandar Čučaković, Marko Pejić, Anastasija Martinenko, and Leslie Forehand; presented by Magdalena Dragović)
- 2016 Aug. 29, San Diego, Ca, SPIE, Optics + Photonics, Organic Photonics + Electronics  
**"Intense deep blue exciplex electroluminescence from NPB/TPBi:PPh<sub>3</sub>O-based OLEDs and their intrinsic degradation mechanisms"** (Invited Paper)  
Paper 9941-5  
Author(s): Joseph Shinar, **Dusan Danilovic**, Chamika Hippola, Ujjal Bhattachrjee, Jacob Petrich, Ruth Shinar  
Iowa State University of Science and Technology (United States)
- 2015 Aug. 10, San Diego, CA, SPIE, Optics + Photonics, Organic Photonics + Electronics  
**"Optically and electrically detected magnetic resonance (ODMR and EDMR, respectively) of phosphorescent, thermally activated delayed fluorescence (TADF), and exciplex OLEDs"** (Invited Paper)  
Paper 9566-30  
Author(s): **Dusan Danilovic**, Chamika Hippola, Min Cai, Ruth Shinar, Joseph Shinar, Iowa State University of Science and Technology (United States)
- 2012 Feb. 29, Boston, MA, 2012 APS March Meeting  
**"Analysis on the Magnetic and Thermodynamic Behavior of a Linear Magnetic Chain [Co(bpdC)H<sub>2</sub>O<sub>2</sub>] H<sub>2</sub>O"**  
Author(s): Youcef Hamida, **Dusan Danilovic**, Tan Yuen, Chyan Long Lin, Temple University (United States)
- 2011 Oct. 31, Scottsdale, AZ, 56<sup>th</sup> Annual Conference on Magnetism and Magnetic Materials  
**"Magnetic Specific Heat Studies of Two Ising ½ Chain Systems M(N<sub>3</sub>)<sub>2</sub>(4,4'-bpy)"**  
Author(s): **Dusan Danilovic**, Youcef Hamida, Tan Yuen, Chyan Long Lin, Temple University (United States)
- 2011 Oct. 31, Scottsdale, AZ, 56<sup>th</sup> Annual Conference on Magnetism and Magnetic Materials  
**"Structural, Magnetic, and Thermodynamic Properties of Three Metal-Organic Frameworks M(N<sub>3</sub>)<sub>2</sub>(4,4'-bpy), M=Ni, Co, and Cu"**  
Author(s): **Dusan Danilovic**, Youcef Hamida, Tan Yuen, Chyan Long Lin, Temple University (United States)
- 2010 Mar. 17, Portland, OR, 2010 APS March Meeting  
**"Magnetic properties of Three Metal-Organic Coordination Networks M(N<sub>3</sub>)<sub>2</sub>(4,4'-bpy) M=Ni, Co, and Cu"**  
Author(s): **Dusan Danilovic**, Youcef Hamida, Tan Yuen, Chyan Long Lin, Temple University (United States), Jing Li, Rutgers, the State University of New Jersey (USA)
- 2010 Mar. 17, Portland, OR, 2010 APS March Meeting  
**"Magnetic Properties of Porous Metal-Organic Networks Ni<sub>2</sub>(BODC)(TED) and Ni<sub>2</sub>(BDC)<sub>2</sub>(TED)"**  
Author(s): Youcef Hamida, **Dusan Danilovic**, Tan Yuen, Chyan Long Lin, Temple University (United States), Jing Li, Rutgers, the State University of New Jersey (USA)
- 2010 Jan. 21, Washington, DC, 11<sup>th</sup> Joint MMM [Magnetism and Magnetic Materials] / Intermag Conference  
**"Analysis of the exchange interactions in three metal-organic coordination network systems possessing 1D magnetism"**  
Author(s): **Dusan Danilovic**, Youcef Hamida, Tan Yuen, Chyan Long Lin, Temple University (United States), Jing Li, Rutgers, the State University of New Jersey (USA)
- 2010 Jan. 21, Washington, DC, 11<sup>th</sup> Joint MMM / Intermag Conference  
**"Magnetic properties of [Mn(N<sub>3</sub>)<sub>2</sub>(4,4'-bpy)], a metal-organic canted antiferromagnet with sizable saturation moment"**  
Author(s): **Dusan Danilovic**, Youcef Hamida, Tan Yuen, Chyan Long Lin, Temple University (United States), Jing Li, Rutgers, the State University of New Jersey (USA)
- 2009 Mar. 15, Pittsburgh, PA 2009 APS March Meeting  
**"Magnetic Properties of Canted Antiferromagnet Mn(N<sub>3</sub>)<sub>2</sub> (4,4'-bpy)"**  
Author(s): **Dusan Danilovic**, Tan Yuen, Chyan Long Lin, Temple University (United States), Jing Li, Rutgers, the State University of New Jersey (USA)

- 2007 Nov. 06, Tampa, FL, 52<sup>nd</sup> Annual Conference on Magnetism and Magnetic Materials  
“**Magnetic Properties of a Metal-Organic Porous Network [Ni<sub>2</sub>(BODC)<sub>2</sub>(TED)]**”  
Author(s): **Dusan Danilovic**, Tan Yuen, Chyan Long Lin, Temple University (United States), Jing Li, Rutgers, the State University of New Jersey (USA)
- 2007 Jan. 08, Baltimore, MD, 10<sup>th</sup> Joint MMM / InterMag Conference  
“**Magnetic Properties of an Fe(II) meso-tetra(4-pyridil)porphyrin network**”  
Author(s): **Dusan Danilovic**, Tan Yuen, Chyan Long Lin, Temple University (United States), Jing Li, Rutgers, the State University of New Jersey (USA)
- 2006 Mar. 14, Baltimore, MD, 2006 APS March Meeting  
“**Initial investigation of magnetic properties of novel Fe(II) meso-tetra(4-pyridil) porphyrin network**”  
Author(s): **Dusan Danilovic**, Tan Yuen, Chyan Long Lin, Temple University (United States), Jing Li, Rutgers, the State University of New Jersey (United States)

## GRANTS / AWARDS / HONORS

### grants – internal funding

#### Iowa State University

- 2019-21 Iowa State University *Bridging the Divide* Grant (Jelena Bogdanović and Charles Kerton co-PIs) member of the team for the work on Studenica project <https://studystudenica.org/>  
Amount awarded: \$50,000
- 2017 Course Development Canvas Grant (with Dr. Amanda Weinstein, Iowa State University)  
Transfer and improvement of online material for *ASTRO 102* and *ASTRO 103*  
Amount awarded: \$4,000

### grants – external funding

- 2012 Golden Leaf Grant (with Mr. Charles Goodman from Pitt Community College)  
Development of on-line introduction into engineering course for the state community college system, North Carolina.  
Amount awarded: \$5,000
- 2010 Golden Leaf Grant (with Mr. Charles Goodman from Pitt Community College)  
Development of calculus-based physic courses for the state community college system, North Carolina.  
Amount awarded: \$5,000
- 2008 Award of Achievement for Outstanding Performance in Teaching, Temple University. Nominations: 255; awarded 5.  
Amount awarded: \$500
- 2007 Studenica Foundation Grant  
Given to promising young scholars from Serbia or of Serbian descent in the USA.  
Applicants applied 50; grants awarded 5. Grants awarded on the merit of research.  
Amount awarded: \$6,500

### awards and honors

- 2008 Award of Achievement for Outstanding Performance in Teaching, Temple University. University-wide level. Nominations: 255; awarded 5.

## TEACHING AND ADVISING

---

Since I have started my academic career in 2002, I have taught more than 2000 students. For my teaching I was awarded University-wide prize while at Temple University in 2008. At Vanderbilt, I teach or co-teach a variety of undergraduate courses in communication of science and technology, astronomy, physics, and math. Experimental physics, is my research specialization. I also find courses that intersect with my specialization, where every day brings new challenge and puzzle in the laboratory, ideal learning environment. For the same reason, I enjoy teaching courses in

communication of science and technology, where we investigate some of the latest topics in science and how these intersect with popular culture.

## **courses developed and taught**

### **Vanderbilt University**

2022-present **Physics and Astronomy Department, Mathematics Department, Program in Communication of Science and Technology, College of Arts and Sciences, Vanderbilt, Nashville, TN**  
**Senior Lecturer/Assistant Research Professor**  
Courses developed and taught:  
-- *ASTR 1010: Intro Astronomy Stars and Galaxies*  
-- *ASTR 3000: Principles of Astrophysics*  
-- *MATH 1301: Single Variable Calculus II*  
-- *CSET 3890: Special Topics: Ethical Questions in Communications in the Case of the First Contact*

### **Iowa State University**

2012-2021 **Physics and Astronomy Department, College of Liberal Arts and Sciences, ISU, Ames, IA**  
**Lecturer**  
Courses taught:  
-- *PHY 242: Calculus Based General Physics for Physics Majors and Honors Students*  
-- *PHY 111: Algebra Based General Physics*  
-- *PHY 221: Calculus Based General Physics*  
-- *PHY 115: Physics for the Life Sciences*  
-- *ASTRO 102: North Star*  
-- *ASTRO 103: Evening Star*  
-- *ASTRO 120: The Sky and the Solar System*  
-- *ASTRO 120: The Sky and the Solar System*  
-- *ASTRO 250: Astronomy Bizarre*  
-- *ASTRO 150: Stars, Galaxies, Cosmology*  
-- *PHY 221: Calculus Based General Physics I* (regular and honors sections)

2015-2021 **Astronomy, Des Moines Area Community College, West Des Moines, IA**  
**Instructor (adjunct)**  
Courses developed and taught:  
--*Physics 152: Astronomy*

2019 (spring) **Simpson College, Indianola, IA**  
**Instructor (by invitation)**  
Course taught:  
--*Physics 360: Quantum Mechanics*

2011- 2012 **Physics and Astronomy, Wayne Community College, Goldsboro, NC**  
**Instructor (full-time)**  
Courses developed and taught:  
-- *PHY 151: Algebra Based General Physics I*  
-- *AST 111: Introduction into Astronomy*  
-- *AST 111-40: Introduction into Astronomy: Hybrid online course Moodle platform*  
-- *EGR 150: Introduction into Engineering: Hybrid online course Moodle platform*

2010- 2012 **Physics and Astronomy, Pitt Community College, Greenville, NC**  
**Instructor (adjunct)**  
Courses developed and taught:  
-- *AST 111: Introduction into Astronomy*  
-- *PHY 251: Calculus Based General Physics I*  
-- *PHY 252: Calculus Based General Physics II*

-- *PHY 251: Calculus Based General Physics I*: Hybrid online course Moodle platform  
(co-developed with Mr. Charles Goodman)

2009-10      **Temple University, Philadelphia, PA**  
**Teaching Assistant**  
Course:  
-- *Calculus Based Physics I* (Prof. M. Mackie)

2008-09      **Physics and Astronomy, Pitt Community College, Greenville, NC**  
**Instructor (adjunct)**  
Courses developed and taught:  
-- *AST 111: Introduction into Astronomy*  
-- *PHY 151: Algebra Based General Physics I*  
-- *PHY 152: Algebra Based General Physics II*

Summer 2008      **Temple University, Philadelphia, PA**  
**Co-instructor with Prof. Z. Dziembowski**  
Course taught:  
-- *Algebra Based Physics I*

2002-08      **Temple University**  
**Teaching Assistant**  
Courses:  
-- *Algebra Based Physics I* (Prof. Z. Dziembowski, Prof. E. Borovitskaya, Prof. V. Višnjić)  
-- *Algebra Based Physics II* (Prof. Z. Dziembowski, Prof. E. Borovitskaya)  
-- *Calculus Based Physics I* (Prof. M. Mackie, Prof. C. Martoff)  
-- *Calculus Based Physics II* (Prof. M. Mackie)  
-- *Electromagnetism* (Prof. C. L. Lin)

## PROFESSIONAL PRACTICE AND INVITED AND GENERAL SCHOLARSHIP

---

### peer reviewer: publishers

2021      **Institute of Physics Publishing**, Bristol England  
*peer reviewer* for book proposal in astrophysics  
2017      **Cambridge University Press**  
*peer reviewer* for book proposal in condensed matter physics

### outreach

2017-2021      **Iowan Student Space Society** (invited by students)

### invited talks

2017      "Planetarium" Gallery talk with Curator Laura Burkhalter (invited by L. Burkhalter and J. Featherstone),  
Des Moines Arts Center, Iowa [regional]

2010      Organized astronomical observations, Greenville, NC [regional]  
*Autumnal equinox, 09/22/2010* (100 people attended)

### membership in professional organizations

2007-present      **APS** [American Physics Society], USA  
2012-present      **SPIE** [Society of Photographic Instrumentation Engineers], USA  
1998-present      **Serbian Astronomical Society**, Serbia  
2008-2021      **IEEE** [Institute of Electrical and Electronics Engineers], USA  
2007-2013      **ACS** [American Chemical Society], USA