

CURRICULUM VITAE

Dr. Andre J. Gesquiere

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Department of Chemistry and NanoScience Technology Center

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Professional Preparation

- 1997, Katholieke Universiteit Leuven, Belgium, Chemistry, M.Sc./B.Sc.
- 2001, Katholieke Universiteit Leuven, Belgium, Chemistry, Ph.D.
- 2002-2002, Postdoctoral Fellow, Department of Chemical Engineering and Chemistry, Eindhoven University of Technology, The Netherlands.
- 2002-2005, Postdoctoral Fellow, Department of Chemistry and Biochemistry, University of Texas at Austin.

Appointments

- 2019-present, Professor, University of Central Florida
- 2011-2019, Associate Professor, University of Central Florida
- 2005–2011, Assistant Professor, University of Central Florida

Honors

- The Schell Award for Implementing Innovative Writing Instruction in the Disciplines, 2018
- Scroll & Quill Society Inductee, 2018
- Research Incentive Award, University of Central Florida, 2014
- National Science Foundation CAREER award (2008-2013)
- Fellow of the Institute for the Promotion of Innovation by Science and Technology in Flanders (1997-1999 and 1999-2001)

Teaching Experience

University of Central Florida students and postdocs:

James Worden: postdoctoral fellow: development of nanocomposite materials for solar energy conversion. Jim obtained a position as assistant professor at Lakeland University (Florida)

Maxwell Bonner: graduate student, PhD Chemistry: live cell imaging and characterization of fluorescent probes for intracellular imaging and tracking, solar energy materials for broadband absorption

Daeri Tenery: graduate student, PhD Chemistry: development of nanocomposite materials for solar energy conversion

Zhongjian Hu: graduate student, PhD Chemistry: development of nanocomposite materials for solar energy conversion

Mona Mathew: graduate student, PhD Chemistry: started first semester spring 2009. Will work on study of DNA diffusion in confined geometries (lipid tubules) for gene delivery application

Ulka Patel: undergraduate student (graduated), Valencia Community College, Orlando, FL: study of DNA diffusion in confined geometries (lipid tubules) for gene delivery application

Mark Russell: undergraduate student, Chemistry, solar energy materials for broadband absorption

Kevin White: undergraduate student, IDS Nanotrack, solar energy materials for broadband absorption

Ankit Gupta: undergraduate student, AMPAC (graduated): study of novel nanomaterials for solar energy conversion at the single molecule/nanoparticle level. Ankit was accepted as a graduate student at the University of Manchester (UK)

Joshua Truit: undergraduate student (graduated), Chemistry and Biomedical Sciences: study of novel nanomaterials for solar energy conversion at the single molecule/nanoparticle level

Aamna Dhillon, Jyoti Lodha, and Ruchi Jahagirdar: These three high school students (Seminole High School, Sanford, FL) are working on a solar project and won first prize in the regional science fair. The students learned about solar cells and how to make and improve them in the lab (collaboration with Dr. Zhai at UCF)

Kaley Smith: Lake Howell High School, Winter Park FL: developed a method based on magnetic nanobeads and quantum dots to detect E. Coli in contaminated water samples

Carlyle Waugh: Dr. Phillips High School, Orlando, FL, 9th grade: working on energy related research: solar energy materials for broadband absorption

Arjun Mathur: Lake Highland ASPIRE program: working on near IR organic dye photovoltaic cells

Simon Tang: undergraduate student, Chemistry, working on near IR organic dye photovoltaic cells

Lauren Simon-Bower: undergraduate student, Chemistry, working on single molecule studies of conducting polymer chain folding behavior as a function of chemical structure

Kristi Baker: undergraduate student, Chemistry, working on single conducting polymer nanoparticle studies to investigate effect of thermal annealing on nanoscale morphology of conducting polymer

Anne Ahlvers: undergraduate student, CREOL, REU student summer 2011 working on ternary blended polymer solar cells

Jeff Geldmeier: undergraduate student, NSTC, REU student summer 2012 working on tandem polymer solar cells and studying morphology of composite polymer nanoparticles

Eshwari Murty: undergraduate student, NSTC, REU student summer 2012 working on correlating single chain polymer folding with architecture of polymer backbone

Lacey Bennett: undergraduate student, Chemistry, conjugated polymer nanoparticles for cancer treatment

Henry Sanchez: undergraduate student, NSTC, REU student summer 2013, working on composite polymer nanoparticles for biophotonics

Samantha Pollack-Schneider: undergraduate student, NSTC, REU student summer 2013 working on correlating single chain polymer folding with architecture of polymer backbone through polarization studies

Marissa Krienke: undergraduate student, Chemistry, conjugated polymer nanoparticles for cancer treatment, surface modification and imaging

Saeid Khederzadeh: undergraduate student, MSE, conjugated polymer nanoparticles for cancer treatment, surface modification and imaging

Jamie Murbach: undergraduate student, NSTC, REU student summer 2014, working on composite polymer nanoparticles for biophotonics

Edward Price: graduate student, Chemistry, working on predictive modeling of in vivo properties of nanomaterials.

Tahmina Banu: graduate student, MSE, conjugated polymer nanoparticles for cancer treatment, surface modification and imaging.

Andrew Towers: graduate student, Chemistry, working on photophysics of inorganic LED materials, and nanomaterial imaging and tracking in plants.

Torus Washington: master student (with thesis), NSTC: nanomaterial imaging and tracking in plants, fluorescent bioimaging and nanoparticle PDT

Brian Butkus: master student, NSTC: nanotoxicity

Yasmine Abdellatif: master student (with thesis), NSTC: nanomaterial imaging and tracking in plants, fluorescent bioimaging and nanoparticle PDT

Ahmed Aboutaleb: master student, NSTC: nanotoxicity

Khalaf Jasim: graduate student, Chemistry, biomedical nanotechnology - fluorescent bioimaging and nanoparticle PDT

Kevin Leung: PSM student, NSTC: biomedical nanotechnology - fluorescent bioimaging and nanoparticle PDT

Sajan Shroff: High school student, Windermere Preparatory School: fluorescent bioimaging and nanoparticle PDT

Alondra Ortiz: undergraduate student, NSTC, REU student summer 2017, working on composite polymer nanoparticles for biophotonics

Olivia George: undergraduate student, NSTC, REU student summer 2017, working on composite polymer nanoparticles for biophotonics

Kaitlin Jones: undergraduate student, UCF Forensics, summer 2017

Martin Topss: UG Chemistry, biomedical nanotechnology - fluorescent bioimaging and nanoparticle PDT

Gregory Miller: graduate student, Chemistry, nanomaterial imaging and tracking in plants.

Ryan Parente: master student (with thesis), NSTC: nanomaterial imaging and tracking in plants.

Mirra Mogensen: graduate student, Chemistry, photophysics of perovskite LED materials in relation to aging of the materials

Brigid Rodriguez: undergraduate student, NSTC, REU student summer 2018, working on composite polymer nanoparticles for biophotonics

Jessica Cruz: undergraduate student, Chemistry, predictive modeling of in vivo properties of nanomaterials. Also REU student summer 2019.

Michael Markley: undergraduate student, Chemistry, photophysics of perovskite LED materials in relation to aging of the materials

Rene Aviles: master student, NSTC, predictive modeling of in vivo properties of nanomaterials focused on oral uptake

Cameron Wesenberg: undergraduate student, Chemistry, photophysics of perovskite LED materials in relation to aging of the materials

Henry Monprevil: master student, NSTC, composite polymer nanoparticles for nanomedicine

Jackson Boone: master student (with thesis), NSTC: composite polymer nanoparticles for antimicrobial applications

Wendy Areiza: undergraduate student, Chemistry, predictive modeling of in vivo properties of nanomaterials focused on oral uptake

Nicole Yeman: undergraduate student, Chemistry, predictive modeling of in vivo properties of nanomaterials focused on code development

Jacobo Salazar: undergraduate student, Chemistry, studied hydroxyl-terminated polystyrene as a medium for in situ intermatrix synthesis of novel aluminum nanoparticles

Jaime Moreno: undergraduate student, Chemistry, preparation of composite polymer nanoparticles for antimicrobial applications

Merialys Borges Rodriguez: undergraduate student, Chemistry, preparation and characterization of composite polymer nanoparticles for antimicrobial applications

Ofir Hadjajadj: undergraduate student, Chemistry, in vitro studies on composite polymer nanoparticles for antimicrobial applications

University of Central Florida courses:

- Spring 2023, Course IDS 6252-0002 Biomedical Nanotechnology, 3 credit hours 50%. I made major revisions by expanding content covered on nanoscale implants and biomedical ethics. I made major revisions by expanding content covered on nanotoxicity and imaging guided surgery.
- Fall 2022, Course PCB 4174-0001 FBIS (Foundations of Bioimaging Science), 3 credit hours 33%

- Fall 2022, Course IDS5127-0001 FBIS (Foundations of Bioimaging Science), 3 credit hours 33%
- Fall 2022, Course IDS6253.0001 Bioanalytical Technology 3 credit hours, 50%
- Fall 2022, Course CHM3422.0M01 Applied Physical Chemistry, 3 credit hours
- Spring 2022, Course IDS 6252-0002 Biomedical Nanotechnology, 3 credit hours 50%. I made major revisions by expanding content covered on nanoscale implants and biomedical ethics.
- Fall 2021, Course PCB 4174-0001 FBIS (Foundations of Bioimaging Science), 3 credit hours 33%
- Fall 2021, Course IDS5127-0001 FBIS (Foundations of Bioimaging Science), 3 credit hours 33%
- Fall 2021, Course IDS6253.0001 Bioanalytical Technology 3 credit hours, 50%
- Fall 2021, Course CHM3422.0M01 Applied Physical Chemistry, 3 credit hours
- Spring 2021, Course IDS 6252-0002 Biomedical Nanotechnology, 3 credit hours 50%.
- Fall 2020, Course PCB 4174-0001 FBIS (Foundations of Bioimaging Science), 3 credit hours 33%
- Fall 2020, Course IDS5127-0001 FBIS (Foundations of Bioimaging Science), 3 credit hours 33%
- Fall 2020, Course IDS6253.0001 Bioanalytical Technology 3 credit hours, 50%
- Fall 2020, Course CHM3422.0M01 Applied Physical Chemistry, 3 credit hours
- Spring 2020, Course IDS 6252-0002 Biomedical Nanotechnology, 3 credit hours 50%. Major revisions due to pandemic: moved fully online, recorded lectures and created online assignments
- Spring 2020, Course PCB 4174-0001 FBIS (Foundations of Bioimaging Science), 3 credit hours 33% Major revisions due to pandemic: moved fully online, recorded lectures and created online assignments
- Spring 2020, Course IDS5127-0001 FBIS (Foundations of Bioimaging Science), 3 credit hours 33% Major revisions due to pandemic: moved fully online, recorded lectures and created online assignments
- Fall 2019, Course IDS6253.0001 Bioanalytical Technology 3 credit hours, 50%
- Fall 2019, Course CHM3422.0M01 Applied Physical Chemistry, 3 credit hours
- Spring 2019, Course IDS 6252-0002 Biomedical Nanotechnology, 3 credit hours 50%
- Spring 2019, Course PCB 4174-0001 FBIS (Foundations of Bioimaging Science), 3 credit hours 33%
- Spring 2019, Course IDS5127-0001 FBIS (Foundations of Bioimaging Science), 3 credit hours 33%
- Fall 2018, Course IDS6253.0001 Bioanalytical Technology 3 credit hours, 50%
- Fall 2018, Course CHM3422.0M01 Applied Physical Chemistry, 3 credit hours
- Summer 2018 NSTC Workshop Lecture: Advanced Optical Imaging for Nanomaterial Research – Methods and Applications 08/01/2018
- Spring 2018, Course IDS 6252-0002 Biomedical Nanotechnology, 3 credit hours 50%
- Spring 2018, Course PCB 4174-0001 FBIS (Foundations of Bioimaging Science), 3 credit hours 33%
- Spring 2018, Course IDS5127-0001 FBIS (Foundations of Bioimaging Science), 3 credit hours 33%

- Fall 2017, Course IDS6253.0001 Bioanalytical Technology 3 credit hours, 50%
- Fall 2017, Course CHM3422.0M01 Applied Physical Chemistry, 3 credit hours, built mixed mode course
- Spring 2017, Course IDS 6252-0002 Biomedical Nanotechnology, 3 credit hours 50%
- Spring 2017, Course PCB 4174-0001 FBIS (Foundations of Bioimaging Science), 3 credit hours 33%
- Spring 2017, Course IDS5127-0001 FBIS (Foundations of Bioimaging Science), 3 credit hours 33%
- Fall 2016, Course IDS6253.0001 Bioanalytical Technology 3 credit hours, 50%
- Fall 2016, Course CHM3422.0001 Applied Physical Chemistry, 3 credit hours, revised course content
- Spring 2016, Course IDS 6252-0002 Biomedical Nanotechnology, 3 credit hours, revised course content 50%
- Spring 2016, Course PCB 4174-0001 FBIS (Foundations of Bioimaging Science), 3 credit hours 33%
- Spring 2016, Course IDS5127-0001 FBIS (Foundations of Bioimaging Science), 3 credit hours 33%
- Fall 2015, Course CHM3422.0001 Applied Physical Chemistry 3 credit hours, revised course content 100%
- Fall 2015, Course IDS6253.0001 Bioanalytical Technology 3 credit hours, new course preparation 50%
- Spring 2015, Course IDS 6252-0002 Biomedical Nanotechnology, 3 credit hours, new course preparation
- Spring 2015, Course PCB 4174-0001 FBIS (Foundations of Bioimaging Science), 3 credit hours
- Spring 2015, Course IDS5127-0001 FBIS (Foundations of Bioimaging Science), 3 credit hours
- Fall 2014, Course CHM3422.0001 Applied Physical Chemistry, 3 credit hours, revised course content
- Fall 2014, Course OSE 3490.0061 Nanophotonics 3 credit hours
- Spring 2014, Course PCB 4174-0001 FBIS (Foundations of Bioimaging Science), 3 credit hours, revised course content
- Spring 2014, Course IDS5127-0001 FBIS (Foundations of Bioimaging Science), 3 credit hours, revised course content
- Fall 2013, Course PHY3422.0001 Nanophysics 3 credit hours, new course preparation
- Fall 2013, Course CHM3422.0001 Applied Physical Chemistry 3 credit hours, revised course content
- Fall 2013, Course OSE 3490.0061 Nanophotonics 3 credit hours
- Spring 2013, Course PCB 4174-0001 FBIS (Foundations of Bioimaging Science), 3 credit hours
- Spring 2013, Course IDS5127-0001 FBIS (Foundations of Bioimaging Science), 3 credit hours

- Fall 2012, Course CHM3422.0001 Applied Physical Chemistry 3 credit hours, integrated writing assignments (from WAC training)
- Fall 2012, Course OSE 3490.0061 Nanophotonics 3 credit hours, integrated writing assignments (from WAC training)
- Spring 2012, Course PCB 4174-0001 FBIS (Foundations of Bioimaging Science), 3 credit hours, updated course with molecular spectroscopy
- Spring 2012, Course IDS5127-0001 FBIS (Foundations of Bioimaging Science), 3 credit hours, updated course with molecular spectroscopy
- Fall 2011, Course CHM3422.0001 Applied Physical Chemistry 3 credit hours, new course preparation
- Fall 2011, Course OSE 3490.0061 Nanophotonics 3 credit hours, updated course with molecular spectroscopy and labs
- Spring 2011, Course PCB 4174-0001 FBIS (Foundations of Bioimaging Science), 3 credit hours, updated course with instructional videos
- Spring 2011, Course IDS5127-0001 FBIS (Foundations of Bioimaging Science), 3 credit hours, updated course with instructional videos
- Fall 2010, Course CHM3410.0001 PCHEM 1 (Thermodynamics) 4 credit hours, updated and expanded curriculum to include more example and homework problems
- Fall 2010, Course OSE 3490.0061 Nanophotonics 3 credit hours, updated course with molecular and nanocrystal photophysics
- Spring 2010, Course PCB 4174-0001 FBIS (Foundations of Bioimaging Science), 3 credit hours, new course preparation
- Spring 2010, Course IDS5127-0001 FBIS (Foundations of Bioimaging Science), 3 credit hours, new course preparation
- Fall 2009, Course CHM3410.0001 PCHEM 1 (Thermodynamics) 4 credit hours, updated and expanded curriculum to include quantum chemistry and molecular spectroscopy
- Fall 2009, Course OSE 3490.0061 Nanophotonics 3 credit hours, updated course with labs (new preparation)
- Fall 2008, Course CHS 6240.0001 Chemical Thermodynamics 3 credit hours, updated and expanded curriculum to include biothermodynamics, quantum chemistry, molecular spectroscopy and kinetics
- Fall 2008, Course OSE 3490.0061 Nanophotonics 3 credit hours, new course preparation
- Spring 2008, Course 4130L-00012 Advanced Analytical Chemistry Lab 2 credit hours
- Fall 2007, Course CHS 6240.0001 Chemical Thermodynamics 3 credit hours, new course preparation
- Fall 2007, Course BSC 3424.0001 Nanobiotechnology 3 credit hours, guest lecturer
- Spring 2007, Course CHM4130L.0013 Advanced Analytical Techniques (Lab) 4 credit hours, new course preparation
- Fall 2006, Course CHM3410.0001 PCHEM 1 (Thermodynamics) 4 credit hours, updated course with 3 additional chapters
- Spring 2006, Course CHM4906.0016 PCHEM 1 (Thermodynamics) independent study section

- Fall 2005, Course CHM3410.0001 PCHEM 1 (Thermodynamics) 4 credit hours, new course preparation
- Proposed nanoscience track course on energy applications of nanoscience

Teaching assistant Biochemical Engineering Course: supervised, instructed and graded students (Catholic University Leuven, 1997-2001)

Supervised Masters Degree student (chemistry), thesis: Scanning Tunneling Microscopy of Self-assembled Fluorinated Isophthalic acid derivatives on Graphite (Catholic University Leuven, 1998)

Supervised Masters Degree student (chemistry), thesis: Scanning Tunneling Microscopy of Diacetylene Compounds (Catholic University Leuven, 1999)

Atomic Force Microscopy training and assisting of over 70 users at the Center for Nano- and Molecular Science and Technology (University of Texas at Austin, 2002-2005)

Outreach program of the Center for Nano- and Molecular Science and Technology:

- educated groups of children aged 5 – 10 years old in nanoscience and nanotechnology, and provided demonstrations (University of Texas at Austin, 2003-2005)
- gave tours for undergraduates in the Science Undergraduate Research Group program at UT Austin, explaining the technological and societal impact of nanoscience in our present and future. This included live demonstrations of Atomic Force Microscopy and Electron Beam Lithography (University of Texas at Austin, 2004)

Invited Lectures Presented

Invited talk: TIFSC-2022 Third International & the Fifth Scientific Conference of College of Science Dec 28 2022, Tikrit University College of Science, Synthesis and Antimicrobial Evaluation of Some Mannich Base Derivatives Bearing of 1,2-Substituted Benzimidazole Moiety

Invited talk: MISA 2021 Nov 12 2021, Orlando, Fluorescence Lifetime Imaging (FLIM) as a Potential Tool for the Imaging of Localization and Translocation of Antibiotics in Plant Tissue

Invited talk: Valencia College Oct 29 2021, Orlando, NSF S-STEM VECTOR program [National Science Foundation Grant No. 1833818 – Title: Supporting Graduation and Transfer of Community College Students in STEM Through Opportunities in Research], Research Experiences for Undergraduates (REU) - An Overview

Invited talk: NanoBoston 2020 Dec 07 2020, Boston, Polymer Nanoparticle based Tumor Targeted ChemoDynamic Therapy (CDT): A New Life for Fenton Chemistry

Invited talk: Tikrit University College of Science Nov 24 2020, ChemoDynamic Therapy with Iron Encapsulating Conjugated Polymer Nanoparticles

Invited talk: Valencia College Sept 03 2020, Orlando, NSF S-STEM VECTOR program [National Science Foundation Grant No. 1833818 – Title: Supporting Graduation and Transfer of Community College Students in STEM Through Opportunities in Research], Research Experiences for Undergraduates (REU) - An Overview

Invited talk: MISA Symposium Oct 31 2018, Orlando, Fluorescence life-time imaging of plant tissue treated with fluorescent model therapeutics

Invited talk: NanoFlorida 2018 - 10/06/2018 - Tracking Translocation of Model Therapeutics in Plant Tissue with Advanced Fluorescence Imaging

Invited talk: MISA Symposium Nov 7 2017, Orlando, Fluorescence Lifetime Imaging for Tracking of In-Planta Translocation of Zinkicide™ Surrogates

Session Moderator: MISA Symposium Nov 6 2017, Orlando, Emerging threats of vascular plant diseases, Bactericides, Bactericide Delivery System

Session chair: ACS San Francisco Spring 2017 (April 2-6): Frontiers in Nanoscience (SOCED)

Invited talk: Energy, Materials, and Nanotechnology (ENM, Orlando, FL) on December 9 2013: Near-infrared Photoresponse Sensitization of Solvent Additive Processed Poly(3-hexylthiophene)-Fullerene Solar Cells by a Low Band Gap Polymers

Invited talk: UCF Physics Colloquium on November 1 2013: Conjugated polymer nanostructured materials for device and biophotonics applications

Invited talk: Energy, Materials, and Nanotechnology (ENM, Orlando, FL) on April 18 2012: Towards polymer nanoparticle imaging and memory devices: charge trapping and storage by composite P3HT/PC₆₀BM nanoparticles

Invited talk: NanoFlorida 2011 (Orlando, FL) on October 1 2011: Correlation between Morphology and Electronic Processes Investigated from Single Conjugated Polymers to their Materials and Devices

Invited talk: ACS Denver on August 22 2011: Conducting polymer nanoparticles for optoelectronic devices and bioimaging

Invited talk: Optical Probes (OP)/Excited State Processes (ESP) (Santa FE, NM) on June 24 2011: Correlation between Morphology and Electronic Processes Investigated from Single Conjugated Polymers to their Materials and Devices

Invited talk FIAVS 2011 (Orlando, FL) on March 8 2011: Conducting polymer nanoparticles for cell imaging and therapy

Invited talk: University of Texas at San Antonio on September 17 2010: Composite Organic Nanoparticles for Solar Cell Applications: Exciton Migration and Morphology Investigated at the Nanoscale

Invited talk: ACS Spring 2010 meeting (San Francisco) on March 22 2010: Composite organic nanoparticles for solar cell applications: Exciton migration and morphology investigated at the nanoscale

Program Committee and Session Chair Smart Biomedical and Physiological Sensor Technologies VII Conference DS207, 2009-2010 on 5-9 April 2010, (Orlando,FL)

Session Chair FI-AVS 2010 (Orlando, FL) on March 9 2010: Optical Techniques for Applied Surface Analysis

Session Chair NanoFlorida 2009 (Orlando, FL) on September 26 2009: Nanophotonics and Nanoelectronics

Invited talk: NanoFlorida 2009 (Orlando, FL) on September 25 2009: Composite Organic Nanoparticles for Solar Cell Applications: Exciton Migration and Morphology Investigated at the Nanoscale

Invited talk: Florida International University on September 18 2009: Molecular scale structure-property relationships for amorphous and crystalline conjugated polymers

Invited talk: NanoRomania (Iasi, Romania) on June 03 2009: Structure-Property Relationships of Conjugated Polymer Materials Investigated at the Single Nanoparticle Level

Invited talk: Brookhaven National Lab, Center for Functional Nanomaterials on May 20 2009: Conjugated Polymer Photochemistry and Photophysics Investigated at the Single Molecule and Single Nanoparticle Level

Invited talk: University of Central Florida (Chemistry) on November 14 2008: Single Particle Spectroscopy on Conducting Polymer-Fullerene Composite Materials for Application in Organic Photovoltaic Devices

Invited talk: University of Southern Mississippi on October 24 2008: A Nanoscale Spectroscopic Study of Chain Morphology in Conducting Polymer Materials for Optoelectronic Device Applications

Invited talk: University of Central Florida (CREOL) on September 19 2008: A Nanoscale Spectroscopic Study of Chain Morphology in Conducting Polymer Materials for Optoelectronic Device Applications

Invited talk: Particles 2008 (international conference) on May 13 2008: Composite conjugated polymer-fullerene nanoparticles as model systems for the study of optoelectronic processes in organic photovoltaic devices

Invited talk: University of Central Florida Department of Mathematics and Physics on September 28, 2007. Excited State Interaction in Conjugated Polymer Devices

Invited talk: Federation of Analytical Chemistry and Spectroscopy Societies (FACSS) (international conference) on October 16, 2007. Excited State Interaction in Conjugated Polymer Devices

Invited talk: University of New Mexico on November 02, 2007. Building a qualitative and quantitative understanding of optoelectronic processes in materials for solar energy conversion: from molecules to material

Invited talk: University of Florida on November 20, 2007. Building a qualitative and quantitative understanding of optoelectronic processes in conducting polymer materials

Invited talk: McGill University on May 19, 2006. Excitons, Polarons, and Their Interactions in Conjugated Polymer Nanoparticles and Devices

Funding

02/15/2023 - 02/14/2024

National Science Foundation Santra, S. (PI), **co-PI**

Conference: NanoFlorida 2023: A Conference Supporting Student Research
Dissemination and Faculty Engagement

This award supports student registration and travel cost to allow students to participate in the NanoFlorida 2023 conference at the University of Central Florida at no cost. In particular, this support expanded student participation in the event from underrepresented groups and underrepresented universities who might otherwise not have funding to enable their participation. Role: Co-PI

04/01/2021 to 03/31/2024

National Science Foundation-Research Experience for Undergraduates Gesquiere, A. (PI), **PI**

REU Site: Engineering and Nanoscience of Materials and Device Applications in
Biotechnology and Medicine.

This award is a renewal of the previous REU site. The theme of the REU site is to study and to develop materials and devices with application in biotechnology and medicine by bringing together engineering, computer science, photonics research, chemistry and biochemistry, and nanoscience and technology in interdisciplinary teams. The students will gain hands-on research training. The research will involve both experimental and theory based learning. Role: PI

09/01/2019 – 08/31/2021

National Science Foundation Khondaker, S. (PI), **co-PI**

MRI: Acquisition of a confocal and tip-enhanced Raman system at a large Hispanic Serving Institution

This project is for the acquisition of an integrated confocal, tip-enhanced Raman system (TERS) and tip-enhanced photoluminescence (TEPL) system, the HORIBA LabRAM Evolution Nano. The system will generate new knowledge and enable impactful discoveries in emerging materials for (opto)electronics, nano- and microstructured materials for biosensing and therapeutics, etc. Role: Co-PI

06/15/2016 to 05/31/2019

National Science Foundation-Research Experience for Undergraduates Gesquiere, A. (PI), **PI**

REU Site: Engineering and Nanoscience of Materials and Device Applications in Biotechnology and Medicine.

The theme of the REU site is to study and to develop materials and devices with application in biotechnology and medicine by bringing together engineering, computer science, photonics research, chemistry and biochemistry, and nanoscience and technology in interdisciplinary teams. The students will gain hands-on research training. The research will involve both experimental and theory based learning. Role: PI

2 RET Supplements 2018 - **PI**

03/01/2015 to 02/29/2020

USDA Santra, S. (PI), **co-PI**

Zinkicide™ A Nanotherapeutic for HLB.

The primary objective of this project is to develop a robust therapy for treating citrus greening disease. Nanomaterials synthesis, characterization, phytotoxicity, antimicrobial efficacy, nanotoxicity to non-target organisms, plant uptake of nanomaterials, multi-scale modelling are some of the major research tasks. Role: Co-PI

08/01/2016 to 08/31/2018

National Science Foundation Chernyak, L. (PI), **co-PI**

MRI: Acquisition of a Cathodoluminescence Microscope for Device Testing, Materials Research and Education.

This project is for the acquisition of a state-of-the-art Allalin 4027 Chronos Cathodoluminescence Electron Microscope manufactured by Attolight AG for continuous and time-resolved in-situ characterization of a wide-range of materials and devices with nanoscale resolution. Cathodoluminescence is the light emitted by specimens as a result of electron bombardment, in the approximate wavelength range of 160 to 2000 nm. This broad spectral range allows Cathodoluminescence to be collected from a wide variety of materials - from narrow band gap semiconductors to insulators, with application to materials science and bioimaging. Role: Co-PI

08/15/2013 to 07/31/2017

National Science Foundation Deng, W. (PI), **co-PI**

Monitoring Quality of Nanostructured Thin Films in Polymer Solar Cell Manufacturing.

One major challenge for continuous manufacturing of polymer solar cells (PSC) is the lack of real-time quality monitoring tools that provide instant feedback for machine control purposes to ensure the film quality and consistency. This project focuses on poly-

thiophene (P3HT), using electrospray (ES) deposition to make nanostructures, and the development of an instant film quality monitoring tool using only two laser beams. Role: Co-PI

08/01/2012 – 07/31/2016

National Science Foundation Gesquiere, A. (PI), **PI**

Engineering and study of a new sensing nanoprobe for direct and rapid delivery of cargo to cytosol, reporting on the delivery event, and quantification of delivered cargo.

The project is aimed at the development of an OFF/ON sensing probe that is specifically targeted towards direct cellular uptake to the cytoplasm, will report on the delivery of cargo in the intracellular environment, and will provide quantitative data on the amount of cargo delivered in the intracellular environment. Role: PI

05/01/2012 to 04/30/2016

National Science Foundation-Research Experience for Undergraduates Gesquiere, A. (PI), **PI**

REU Site: Hard and Soft Materials in Nanoscience Technology Driven Energy Applications.

This project aims for the recruitment and training of a new generation of future scientists that will lead the way in the development and commercialization of materials and technologies for energy production that are designed based on principles and insights gained from nanoscience and nanotechnology. Role: PI

RET Supplement 2014 - **PI**

RET Supplement 2012 - **PI**

08/01/2009 to 07/31/2012

National Science Foundation Belfield, K. (PI), **Co-PI**

“ARRA: Purchase and Development of a Cyber-Enabled Broadly Tunable kHz Femtosecond Laser System.”

This project aims for the acquisition and development of a cyber-enabled tunable amplified femtosecond laser system to support research and teaching at UCF and in the programs of our internet-linked collaborators. Role: Co-PI

05/01/2008 to 04/30/2014

National Science Foundation CAREER Gesquiere, A. (PI), **PI**

Building a qualitative and quantitative understanding of optoelectronic processes in materials for solar energy conversion: from molecules to material.

This project aims to develop nanoparticle models for the bulk material with the goal of discovering the molecular level details of harvesting, transfer of light energy and interfacial charge separation in organic and hybrid (organic-semiconductor) functional materials. Role: PI

06/01/2008 - 05/31/2012

National Science Foundation Khondaker, S (PI), **Co-PI**

Collaboration: Planar Gated Organic Photovoltaic Devices.

This project aims for a new device architecture with higher open circuit voltage, higher short circuit current and fill factor for organic photovoltaic devices. Role: Co-PI

06/15/2006 to 12/31/2007

National Science Foundation-Nanoscale Exploratory Research Gesquiere, A. (PI), PI
 “Nanoscale Optical and Electronic Processes in Active Nanostructures and Devices for
 Solar Energy Conversion.”

This project aims to develop toolsets to investigate the opto-electronic processes in materials and devices energy conversion. The goals of the research are to understand how the architecture (i.e. design) and nanostructure of the materials and devices in which these materials are embedded is affecting the energy conversion efficiency. Role: PI.

**NSF Research Experiences for Undergraduates (REU) Students Recruited to UCF
 2011 – 2022**

	First Name	Last Name	College	Cohort
1	Eshwarty	Murty	University of Maryland	Summer 2012
2	Jeff	Geldmeier	Virginia Tech	Summer 2012
3	Shannon	Sullivan	University of Central Florida	Summer 2012
4	Shelby	Maddox	Louisiana Tech University	Summer 2012
5	James	Fallon	CUNY City College	Summer 2012
6	Charles	Hart	Central Connecticut State University	Summer 2012
7	Sarah	Lefave	University of Central Florida	Summer 2012
8	Sean	Schulte	University of Arizona	Summer 2012
9	Robert	Hudson	University of Rochester	Summer 2012
10	Ernesto	Barraza-Valdez	University of Arizona	Summer 2012
11	Kelsey	Killion	Georgia Institute of Technology	Summer 2012
12	Leonel	Atencio	University of Central Florida	Summer 2013
13	Tyler-Kate	Starzyk	Manhattan College	Summer 2013
14	Henry	Sanchez	Johns Hopkins University	Summer 2013
15	Jomar	Gonzalez-Medina	University of Puerto Rico-Mayaguez	Summer 2013
16	Manuel	Giraldo	University of Central Florida	Summer 2013
17	Jeanette	Ortega	Johns Hopkins University	Summer 2013
18	Alicia	Gizzi	Central Connecticut State University	Summer 2013
19	Joyce	Theisen	James Madison University	Summer 2013
20	Samantha	Schneider-Pollack	Alfred University	Summer 2013
21	Catherine	Shepard	Principia College	Summer 2013
22	Corey	Rodas	University of Pennsylvania	Summer 2014
23	Elyse	Chase	University of Central Florida	Summer 2014
24	Haley	Kerrigan	Connecticut College	Summer 2014
25	Marissa	Krienke	University of Central Florida	Summer 2014
26	Austin	Michalik	Indiana University of Pennsylvania	Summer 2014
27	David	Fox	University of Central Florida	Summer 2014
28	Jamie	Murbach	Clemson University	Summer 2014

29	Ronald	Justman	Pima Community College	Summer 2014
30	Ben	Croop	University of Michigan	Summer 2014
31	Alanna	Yazzie	New Mexico State University	Summer 2014
32	Cameron	Pratt	University of Central Florida	Summer 2015
33	Kevin	Zayas	University of Central Florida	Summer 2015
34	Austin	Burns	University of Central Florida	Summer 2016
35	Austin	Rahman	University of Central Florida	Summer 2016
36	Danny	Britt	University of Central Florida	Summer 2016
37	Michelle	Wilson	UCF/Valencia College	Summer 2016
38	Sara	Khederzadeh	University of Central Florida	Summer 2016
39	Simone	Laing	University of Central Florida	Summer 2016
40	Zon	Thwin	Valencia College	Summer 2016
41	Adrian	Bico	University of Illinois at Chicago	Summer 2017
42	Alondra	Ortiz Ortiz	University of Puerto Rico, Mayaguez Campus	Summer 2017
43	Beth	Dibiase	Northeastern University	Summer 2017
44	Emma	Sinkus	University of Miami	Summer 2017
45	Eric	Woods	University of Houston	Summer 2017
46	Sarah	Baum	Clemson University	Summer 2017
47	Theresa	Merlino	Penn State	Summer 2017
48	Amanda	Gomez	Harvard University	Summer 2017
49	Gabrielle	Jones	Columbia University in the City of New York	Summer 2017
50	Samuel	Urena	Stony Brook University	Summer 2017
51	Olivia	George	The University of Tennessee at Chattanooga	Summer 2017
52	Christie	Miller	University of Central Florida	Summer 2017
53	Michelle	Prophete	University of Central Florida	Summer 2017
54	Megan	Gothard	Kenyon College	Summer 2017
55	Antonio	Gentilini	Florida Institute of Technology	Summer 2018
56	Beatriz	Jimenez	University of Central Florida	Summer 2018
57	Brigid	Rodriguez	University of Dallas	Summer 2018
58	Bryan	Demosthene	University of Central Florida	Summer 2018
59	Charles	Lynch	Rose-Hulman Institute of Technology	Summer 2018
60	Crystal	Nattoo	University of Miami	Summer 2018
61	Felix	Hernandez	Inter American University of Puerto Rico, Bayamon Campus	Summer 2018
62	Madison	Royse	University of Nebraska-Lincoln	Summer 2018
63	Michael	Villegas	University of Central Florida	Summer 2018
64	Vanel	Porter	University of Louisiana at Lafayette	Summer 2018
65	Rasha	Bara	Johns Hopkins University	Summer 2018
66	Paola	M. Morales Carvajal	Polytechnic University of Puerto Rico, San Juan Campus	Summer 2019
67	Gabriela	Cortes	Georgia Institute of Technology	Summer 2019
68	Mark	Livingstone	Clemson University	Summer 2019
69	Daisy	Bello	Valencia College	Summer 2019

70	Jessica	Cruz	University of Central Florida	Summer 2019
71	Aleksay	Strekalov	Alfred University	Summer 2021
72	Alex	Cushing	California Polytechnic State University San Luis Obispo	Summer 2021
73	Aliya	Hyman	University at Buffalo	Summer 2021
74	Ayush	Chitrakar	Colorado College	Summer 2021
75	Claudia	Zorba	University of Rochester	Summer 2021
76	Gillian	Braun	Mount Holyoke College	Summer 2021
77	Khemisha	Stout	Valencia College	Summer 2021
78	Nathalia	Cordero Rodriguez	Valencia College	Summer 2021
79	Omar	Cepeda Torres	Polytechnic University of Puerto Rico, San Juan Campus	Summer 2021
80	Taylor	Recaido	Colorado State University	Summer 2021
81	Annabel	Jacobs	University of Florida	Summer 2022
82	Hunter	Sjobom	Catawba College	Summer 2022
83	Marian	Perez	Fort Valley State University	Summer 2022
84	Roman	DeCaro	Arizona State University	Summer 2022
85	Dawn	San Luis	University of Central Florida	Summer 2022
86	Shaney	Enck	Seton Hill University	Summer 2022
87	Maria	C Garcia-Chalbaud	Polytechnic University of Puerto Rico	Summer 2022
88	Carlos	Negron	Vanderbilt University	Summer 2022
89	Marco	Rojas-Cessa	Columbia University in the City of New York	Summer 2022
90	Maria	Bolen	Valencia College	Summer 2022

Publications: Book Chapters

UCF

Book review Journal of the American Chemical Society (JACS), published online **DOI:** 10.1021/ja101350v

Young Jong Lee, **Andre J. Gesquiere**, So-Jung Park, Paul F. Barbara Fluorescence-Voltage Single Molecule Spectroscopy of Conjugated Polymers, Dekker Encyclopedia of Nanoscience and Nanotechnology (Taylor & Francis)
DOI: 10.1081/E-ENN-120042180, (2006)

U.T. Austin

Andre J. Gesquiere, Doo Young Kim, So-Jung Park, and Paul F. Barbara

Applications of Scanned Probe Microscopy to Polymers:

Edited by James D. Batteas, Chris A. Michaels and Gilbert C. Walker

Oxford university press (2005)

“Chapter 1: Near Field Spectroscopic Studies of Fluorescence Quenching by Charge Carriers”

ISBN13: 9780841238831

ISBN10: 0841238839

K. U. Leuven

F.C. De Schryver, J. Hofkens, T. Gensch, S. De Feyter, P. Vanoppen, K. Tsuda, **A. Gesquiere**, P. Foubert, K. Jeuris, W. Verheyen, L. Latterini, G. Schweitzer, T. Vosch, P.C.M. Grim, R. Shukla and W. Dehaen, De Boeck-Université Publ.

Bibliothèque Scientifique Francqui Monograph, Chapter 4, “Space resolved photochemistry from ensembles to single molecules”

Chapter 19, 561-589 (1999) ISBN2-8041-3218-8

S. De Feyter, P.C. Grim, P. Vanoppen, **A. Gesquiere**, F.C. De Schryver

Dynamics and photochemistry of 2-dimensional molecular crystals at the liquid-solid interface

“Organic Mesoscopic Chemistry”, ed. H. Masuhara, F.C. De Schryver, IUPAC

Chemistry for the 21st Century, Blackwell Science, ISBN 06320512563, p. 127-143, 1999

Service

Conference session chair/organizer

- Session chair: MISA Symposium Nov 6 2017, Orlando, Emerging threats of vascular plant diseases, Bactericides, Bactericide Delivery System
- Session chair: MISA Symposium Nov 6 2017, Orlando, Emerging threats of vascular plant diseases, Bactericides, Bactericide Delivery System
- Session chair: ACS San Francisco Spring 2017 (April 2-6): Frontiers in Nanoscience (SOCED)
- Treasurer Florida AVS
- Florida AVS co-organizer (annual)
- Program Committee and Session Chair Smart Biomedical and Physiological Sensor Technologies VII Conference DS207, 2009-2010 on 5-9 April 2010, (Orlando,FL)
- Session Chair FI-AVS 2010 (Orlando, FL) on March 9 2010: Optical Techniques for Applied Surface Analysis
- Session Chair NanoFlorida 2009 (Orlando, FL) on September 26 2009: Nanophotonics and Nanoelectronics

University/Academic service

- UCF Faculty Excellence Advisory Board (Inclusivity subcommittee)
- UCF COS Recognition & Scholarship Committee: Excellence Awards
- UCF Faculty Senate Member, Representative College of Sciences & Department of Chemistry 2018 – 2020
- UCF Graduate Council Curriculum Committee (Vice Chair)
- UCF Faculty Excellence CV review workshop panelist (member)
- UCF COACHE Strategic Planning Committee (member)
- UCF Faculty Excellence Associate Professor Mentoring Community (member)
- UCF Faculty Excellence Advisory Board (Co-chair Mid-career subcommittee)
- UCF Scroll & Quill Society awards committee (member, reviewer)
- Poster & Oral presentation judge UCF Research Week
- Poster judge UCF Student Scholar Symposium
- Poster judge UCF SURE
- College of Sciences P&T committee (chair)
- UCF CCIE REU proposal assistance for NSF REU resubmission (invited by CCIE)
- Chemistry dept. Recruitment and Outreach graduate committee (chair)
- Chemistry dept. NSF CAREER committee (member)
- Chemistry dept. URR report mentor and reviewer
- Chemistry dept. Open House ACS Mixer organizing committee (chair)
- Department of Chemistry Personnel Committee (including as chair twice)

- Chemistry dept. Undergraduate Curriculum Committee (member)
- Chemistry dept. Facilities and Safety Committee (member)
- Chemistry Dept. Student Seminar poster judge
- TIP committee – UCF Centers and Institutes
- Workshop for ORC on NSF REU application
- Delivered REU workshop series on scientific writing (WAC collaboration)
- NSTC Space committee
- NSTC AESP committee
- PhD, MS, and Honors thesis committees across centers and departments
- ORC internal competition reviewer for limited submissions, and seed grants (UCF-Mayo Clinic)
- “College” committee for NSTC P&T guidelines
- Treasurer Florida AVS
- External reviewer for P&T applications
- NSF REU presence at UCF SURE (summer, co-organized)
- Numerous dissertation and candidacy committees across centers and departments
- NSTC Fellowship committee
- NSTC NSF CAREER committee (member)
- NSTC Affiliates committee (chair)
- NSTC Space committee (member)
- NSTC Education committee (member)
- NSTC Grad Recruitment Committee (member)
- NSTC Strategic planning committee (chair)
- NSTC AFM super user (user training)
- NSTC phase III building committee
- Chemistry dept. Physical Chemistry committee
- NSTC instrumentation committee (chair)
- Provided student training on center facilities a few years until we got a full-time lab manager
- Engineering Energy Management and Sustainability education committee
- Various faculty and staff search committees
- Reviewer ACS, Wiley, Elsevier, RSC, and others including open access
- Panel reviewer for NSF proposals
- Mail-in reviewer for NSF proposals
- Mail-in reviewer for DOE proposals
- Reviewer for Bicentennial Program in Science and Technology, CONICYT-World Bank, Providencia, Santiago, Chile
- Reviewer for the Petroleum Research Fund (PRF, grant agency of the American Chemical Society)
- Several NSTC faculty and staff search committees, including as committee chair
- CREOL faculty search committee member
- Several NSTC faculty CPE / P&T committees, including as committee chair
- 1 patent awarded, 1 provisional filed

Community service

- Mentored high school volunteers (one with publication, one at Stanford)
- Recruited, supported and hosted 90 undergraduates from across the nation for summer NSF REU internships at UCF over 11 years
- Demonstrations for visiting student groups at the NSTC (several per year), from Central Florida schools and youth groups
- Demonstrations at Orlando Science Center
- Obtained RET supplements for high school teacher training in research education
- Active with USDA CoE, involve growers and extension faculty
- Active in NanoFest (posters, discussions and activities promoting awareness of the emerging nanotechnology field at local library)

Professional development (formal)

- Writing Across the Curriculum (integrate writing in courses)
- Writing Across the Curriculum Scholarship of Teaching and Learning project
- IDL6543 course (required for approval towards online teaching), offered CHM3422 in mixed mode Fall 2017

Peer Reviewed Journal Publications

UCF

1. Waheed, I. F.; Hamad, M. A.; Jasim, K. A.; Gesquiere, A. J. Degradation of methylene blue using a novel magnetic CuNiFe₂O₄/g-C₃N₄ nanocomposite as heterojunction photocatalyst. *Diamond and Related Materials* **2023**, *133*, 109716.
2. Soliman, M.; Lee, B.; Ozcan, A.; Rawal, T. B.; Young, M.; Mendis, H. C.; Rajasekaran, P.; Washington, T.; Pingali, S. V.; O'Neill, H.; Gesquiere, A.; De La Fuente, L.; Petridis, L.; Johnson, E.; Graham, J.; Santra, S.; Tetard, L. Engineered zinc oxide-based nanotherapeutics boost systemic antibacterial efficacy against phloem-restricted diseases. *Environmental Science: Nano* **2022**, *9*, 2869-2886.
3. Lin, Z.; Aryal, S.; Cheng, Y.-H.; Gesquiere, A. J. Integration of In Vitro and In Vivo Models to Predict Cellular and Tissue Dosimetry of Nanomaterials Using Physiologically Based Pharmacokinetic Modeling. *ACS Nano* **2022**, *16*, 19722-19754.
4. Zhang, C.; He, Z.; Mogensen, M.; Gesquiere, A. J.; Chen, C.-H.; Chiu, T.-L.; Lee, J.-H.; Wu, S.-T.; Dong, Y. A deep-dyeing strategy for ultra-stable, brightly luminescent perovskite-polymer composites. *Journal of Materials Chemistry C* **2021**, *9*, 3396-3402.
5. Miller, G. S.; Parente, R. M.; Santra, S.; Gesquiere, A. J. Tracking of fluorescent antibiotic conjugate in planta utilizing fluorescence lifetime imaging. *Planta* **2021**, *253*, 1-15.
6. Jasim, K. A.; Waheed, I.; Topps, M. T.; Gesquiere, A. J. Multifunctional System for Combined Chemodynamic–Photodynamic Therapy Employing the Endothelin Axis Based on Conjugated Polymer Nanoparticles. *Polymer Chemistry* **2021**, *12*, 5449-5466.
7. Price, E.; Gesquiere, A. J. Animal simulations facilitate smart drug design through prediction of nanomaterial transport to individual tissue cells. *Science Advances* **2020**, *6*, eaax2642.
8. Pradhan, B.; Das, S.; Li, J.; Chowdhury, F.; Cherusseri, J.; Pandey, D.; Dev, D.; Krishnaprasad, A.; Barrios, E.; Towers, A. Ultrasensitive and ultrathin phototransistors and photonic synapses using perovskite quantum dots grown from graphene lattice. *Science Advances* **2020**, *6*, eaay5225. **Cover page paper.**
9. He, J.; He, Z.; Towers, A.; Zhan, T.; Chen, H.; Zhou, L.; Zhang, C.; Chen, R.; Sun, T.; Gesquiere, A. J. Ligand assisted swelling–deswelling microencapsulation (LASDM) for stable, color tunable perovskite–polymer composites. *Nanoscale Advances* **2020**, *2*, 2034-2043.
10. Chowdhury, F. A.; Pradhan, B.; Ding, Y.; Towers, A.; Gesquiere, A.; Tetard, L.; Thomas, J. Perovskite quantum dot-reduced graphene oxide superstructure for efficient photodetection. *ACS Applied Materials & Interfaces* **2020**, *12*, 45165-45173.
11. Cherusseri, J.; Varma, S. J.; Pradhan, B.; Li, J.; Kumar, J.; Barrios, E.; Amin, M. Z.; Towers, A.; Gesquiere, A.; Thomas, J. Synthesis of air-stable two-dimensional nanoplatelets of Ruddlesden–Popper organic–inorganic hybrid perovskites. *Nanoscale* **2020**, *12*, 10072-10081.
12. Price, E.; Gesquiere, A. J. An in vitro assay and artificial intelligence approach to determine rate constants of nanomaterial-cell interactions. *Scientific Reports* **2019**, *9*, 1-14.
13. Jasim, K. A.; Gesquiere, A. J. Ultrastable and biofunctionalizable conjugated polymer nanoparticles with encapsulated iron for ferroptosis assisted chemodynamic therapy. *Molecular Pharmaceutics* **2019**, *16*, 4852-4866.
14. Ortiz, A. M. O.; George, O.; Jasim, K.; Gesquiere, A. J. Photodynamic Therapy with Conjugated Polymer Nanoparticles: Recent Advances and Therapeutic Considerations. *Journal of Cancer Treatment and Diagnosis* **2018**, *2*, 1-6.

15. He, J.; Towers, A.; Wang, Y.; Yuan, P.; Jiang, Z.; Chen, J.; Gesquiere, A. J.; Wu, S.-T.; Dong, Y. In situ synthesis and macroscale alignment of CsPbBr₃ perovskite nanorods in a polymer matrix. *Nanoscale* **2018**, *10*, 15436-15441. **2018 Nanoscale HOT Article selected by referees, and Nanoscale top 5% most-read Q3, and included in the International Year of the Periodic Table : From Pb and Sn Perovskites to the Next Generation**
16. Gesquiere, A.; Jasim, K.; Topps, M.; Shroff, S.; Ortiz, A. M. O.; George, O.; Abdellatif, Y. Conjugated polymer nanotherapeutics for next generation photodynamic therapy. *Medical Research Archives* **2018**, *6*, 1673. **Invited Review**
17. Wang, Y.; He, J.; Chen, H.; Chen, J.; Zhu, R.; Ma, P.; Towers, A.; Lin, Y.; Gesquiere, A. J.; Wu, S. T. Ultrastable, Highly Luminescent Organic–Inorganic Perovskite–Polymer Composite Films. *Advanced Materials* **2016**, *28*, 10710-10717.
18. Tetard, L.; Soliman, M.; Young, M.; Towers, A.; Washington, T.; Rajasekaran, P.; Das, S.; Johnson, E.; Gesquiere, A.; Santra, S. Characterization of Zinkicide (TM) in plant tissues. *PHYTOPATHOLOGY* **2016** *106* (12), 69-69.
19. Li, C.; Ding, Y.; Soliman, M.; Lorenzo, J.; Dhasmana, N.; Chantharasupawong, P.; Ilevlev, A. V.; Gesquiere, A. J.; Tetard, L.; Thomas, J. Probing Ternary Solvent Effect in High Voltage Polymer Solar Cells Using Advanced AFM Techniques. *ACS applied materials & interfaces* **2016**, *8*, 4730-4738.
20. Basumallick, S.; Gabriela Nogueira Campos, M.; Richardson, D.; Gesquiere, A.; Santra, S. Hydrothermally treated chitosan spontaneously forms water-soluble spherical particles stable at a wide pH range. *International Journal of Polymeric Materials and Polymeric Biomaterials* **2016**, *65*, 751-758.
21. Maxwell, T.; Banu, T.; Price, E.; Tharkur, J.; Campos, M. G. N.; Gesquiere, A.; Santra, S. Non-Cytotoxic Quantum Dot–Chitosan Nanogel Biosensing Probe for Potential Cancer Targeting Agent. *Nanomaterials* **2015**, *5*, 2359-2379.
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23. Doshi, M.; Gesquiere, A. J. Photodynamic Therapy with Blended Conducting Polymer/Fullerene Nanoparticle Photosensitizers. *JoVE (Journal of Visualized Experiments)* **2015**, e53038-e53038. **Invited paper**
24. Doshi, M.; Copik, A.; Gesquiere, A. J. Development and characterization of conducting polymer nanoparticles for photodynamic therapy in vitro. *Photodiagnosis and photodynamic therapy* **2015**, *12*, 476-489.
25. Doshi, M.; Treglown, K.; Copik, A.; Gesquiere, A. J. Composite Conjugated Polymer/Fullerene Nanoparticles as Sensitizers in Photodynamic Therapy for Cancer. *BioNanoScience* **2014**, *4*, 15-26.
26. Crotty, A. M.; Gizzi, A. N.; Rivera-Jacquez, H. J.; Masunov, A. m. E.; Hu, Z.; Geldmeier, J. A.; Gesquiere, A. J. Molecular packing in organic solar cell materials: insights from the emission line shapes of P3HT/PCBM polymer blend nanoparticles. *The Journal of Physical Chemistry C* **2014**, *118*, 19975-19984.
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28. SCHNEIDER-POLLACK, S.; DOSHI, M.; GELDMEIER, J.; GESQUIERE, A. J. P3HT chain morphology in composite P3HT/PCBM nanoparticles studied by single particle fluorescence excitation polarization spectroscopy. *Biophysical Reviews and Letters* **2013**, *8*, 243-253.

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30. Hu, Z.; Liu, J.; Simón-Bower, L.; Zhai, L.; Gesquiere, A. J. Influence of backbone rigidity on single chain conformation of thiophene-based conjugated polymers. *The Journal of Physical Chemistry B* **2013**, *117*, 4461-4467.
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34. Hu, Z.; Gesquiere, A. J. The Effect of Fullerene on the Morphology of Conjugated Polymer Single Molecules and Nanoparticles. *Reviews in Nanoscience and Nanotechnology* **2012**, *1*, 103-118.
35. Hu, Z.; Gesquiere, A. J. Charge trapping and storage by composite P3HT/PC60BM nanoparticles investigated by fluorescence-voltage/single particle spectroscopy. *Journal of the American Chemical Society* **2011**, *133*, 20850-20856.
36. Zhang, X.; Mathew, M.; Gesquiere, A. J.; Fang, J. Fluorescent composite tubes with pH-controlled shapes. *Journal of Materials Chemistry* **2010**, *20*, 3716-3721.
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38. Hu, Z.; Zou, J.; Deibel, C.; Gesquiere, A. J.; Zhai, L. Single-Molecule Spectroscopy and AFM Morphology Studies of a Diblock Copolymer Consisting of Poly (3-hexylthiophene) and Fullerene. *Macromolecular Chemistry and Physics* **2010**, *211*, 2416-2424.
39. Hu, Z.; Tenery, D.; Bonner, M. S.; Gesquiere, A. J. Correlation between spectroscopic and morphological properties of composite P3HT/PCBM nanoparticles studied by single particle spectroscopy. *Journal of Luminescence* **2010**, *130*, 771-780.
40. Gesquiere, A. J. Optical Properties and Spectroscopy of Nanomaterials. *Journal of the American Chemical Society* **2010**, *132*, 3637-3638.
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42. Tenery, D.; Gesquiere, A. J. Effect of PCBM Concentration on Photoluminescence Properties of Composite MEH-PPV/PCBM Nanoparticles Investigated by a Franck-Condon Analysis of Single-Particle Emission Spectra. *ChemPhysChem* **2009**, *10*, 2449-2457. **Cover page paper.**
43. Tenery, D.; Gesquiere, A. J. Interplay between fluorescence and morphology in composite MEH-PPV/PCBM nanoparticles studied at the single particle level. *Chemical Physics* **2009**, *365*, 138-143.
44. Hu, Z.; Gesquiere, A. J. PCBM concentration dependent morphology of P3HT in composite P3HT/PCBM nanoparticles. *Chemical Physics Letters* **2009**, *476*, 51-55.
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Other than UCF

46. Park, S.-J.; Link, S.; Miller, W. L.; Gesquiere, A.; Barbara, P. F. Effect of electric field on the photoluminescence intensity of single CdSe nanocrystals. *Chemical Physics* **2007**, *341*, 169-174.
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