

## **Grégory Guisbiers, Ph.D.**

**Assistant Professor-Tenure Track**

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### **A. Profil**

Dr. Guisbiers is a condensed matter physicist (h-index=23, citations=1440), currently tenure-track faculty at the University of Arkansas at Little Rock. He is active in nanophysics - studying size, shape and composition effects on materials properties through nano-thermodynamics and electron microscopy. He is an expert in the determination of the phase diagrams of nano-alloys. His research interests also include synthesis of nanomaterials by wet-chemistry and laser ablation in liquids, surface segregation, materials selection (Ashby's methodology) and application of nanomaterials (catalysis and medicine). He is also consultant for the French National Center for Scientific Research (CNRS,) and the Romanian Executive Agency for Higher Education, Research, Development and Innovation Funding (UEFISCDI). He also pursues industrial valorization directions for his research through his intellectual property effort (two US patents) and his founding of a materials science start-up company, Nano Xplore Ltd. Co.

### **B. Education**

• University of Mons, Belgium	Ph.D.	2006	Physics
• University of Mons, Belgium	M.Sc.	2003	Material Sciences
• University of Mons, Belgium	M.Sc.	2002	Education
• University of Mons, Belgium	M.Sc.	2001	Physics
• University of Mons, Belgium	B.Sc.	1999	Physics

### **C. Positions and Appointments**

- 2017-present Assistant Professor of Physics (Tenure-Track),  
University of Arkansas at Little Rock, AR, USA
- 2014-2017 Research Assistant Professor of Physics (Non-Tenure-Track),  
University of Texas at San Antonio, TX, USA
- 2012-2013 Project Manager, Materia Nova, Belgium
- 2010-2012 Postdoctoral fellow, University of Louvain, Belgium
- 2008-2010 Postdoctoral fellow, IEMN-CNRS, France
- 2007-2008 Postdoctoral fellow, University of Aveiro, Portugal
- 2003-2006 Research fellow, University of Mons, Belgium
- 2001-2002 Physics instructor at the Don Bosco Institute-Tournai, Belgium.

### **D. Professional Memberships**

- American Physical Society (APS) since 2013
- American Chemical Society (ACS) since 2012
- Materials Research Society (MRS) since 2006
- Institute of Physics (IOP) since 2001

**Grégory Guisbiers, Ph.D.**  
**Assistant Professor-Tenure Track**

**E. Publications** (see list attached)

- 63 peer-reviewed papers
- 9 proceedings
- 2 books
- 2 patents

**F. Teaching**

- 2017-present: Courses taught at the University of Arkansas at Little Rock
  - PHYS 1321-College Physics I
  - PHYS 1322-College Physics II
  - PHYS 2321- Physics for Scientists and Engineers I
  - PHYS 2322-Physics for Scientists and Engineers II
  - PHYS 3330-Medical Physics
  - PHYS 4330 & 5330-Mathematical Methods in Physical Sciences
  - PHYS 4289 & 4389-Undergraduate Research
  - PHYS 4399 & 5399-ST Biophysics
  - ASCI 9200: Doctoral Research/Dissertation
- 2014-2017: Courses taught at the University of Texas at San Antonio
  - PHYS 1603-Algebra-based physics I
  - PHYS 1623-Algebra-based physics II
  - PHYS 1611-Algebra-based Physics I Lab
  - PHYS 1631-Algebra-based Physics II Lab
  - PHYS 1943-Physics for Scientists & Engineers I
  - PHYS 1963-Physics for Scientists & Engineers II
  - PHYS 1951-Physics for Scientists & Engineers I Lab
  - PHYS 1971-Physics for Scientist & Engineers II Lab
  - PHYS 2823-Mathematical physics I

**G. Advising**

- Graduate Advisor, Matthew Kuser (2017-present)
- Graduate Advisor, Luke Geoffrion (2017-present)
- Graduate Advisor, Entidhar Alkuam (2017-present)
- Graduate Advisor, Fresnel Forcade Zamora (2013)
- Undergraduate Research Advisor, Patrick Taylor (2018-present)
- Undergraduate Research Advisor, Tina Hesabizadeh (2018-present)
- Undergraduate Research Advisor, Evan Hicks (2018-present)
- Undergraduate Research Advisor, Kimber Stout (2017)

**H. Honors**

- 2010 Back to Belgium (B2B) grant delivered by the *Belgian Federal Science Policy Office*. These grants are aimed at promoting the reintegration of highly qualified Belgian researchers working for at least 2 years in a foreign country (8 selected candidates among 32 applicants).
- 2007 Postdoctoral award delivered by the Fundação para a Ciência e a Tecnologia.

**Grégory Guisbiers, Ph.D.**  
Assistant Professor-Tenure Track

**I. Outreach and Media Communications**

- 2017 <http://nanotechweb.org/cws/article/tech/68893>  
<http://nanotechweb.org/cws/article/tech/68845>
- 2016 Media news in *MRS Bulletin*, “Nano Focus: Nanothermodynamics modeling characterizes electrum at the nanoscale”, February 2016, pages 88-89.
- 2015 <http://nanotechweb.org/cws/article/tech/63601>  
<http://nanotechweb.org/cws/article/tech/63575>
- 2014 <http://physicsworld.com/cws/article/news/2014/dec/08/laser-blast-makes-pure-quantum-dots>  
<http://nanotechweb.org/cws/article/tech/59471>  
<http://nanotechweb.org/cws/article/tech/59244>  
<http://nanotechweb.org/cws/article/tech/59055>  
<http://www.nanowerk.com/spotlight/spotid=37900.php>
- 2013 <http://antenasanluis.mx/recibe-uaslp-a-destacado-fisico-belga/>  
Invited lecturer at the XX international summer school in Materials Science & Technology (IMRE-Cuba).
- 2012 <http://www.materials360online.com/newsDetails/33660>  
<http://nanotechweb.org/cws/article/tech/51767>  
<http://www.nanowerk.com/spotlight/spotid=27972.php>
- 2011 Media News in *MRS bulletin*, “Nano Focus: Thermodynamics predict enhanced vacancies formation in nanoparticles compared to the bulk”, April 2011, page 247  
<http://journals.cambridge.org/action/displayAbstract?fromPage=online&aid=8267551>  
<http://www.nanowerk.com/spotlight/spotid=19742.php>  
<http://www.mrs.org/02-08-2011-001/>  
<http://nanotechweb.org/cws/article/tech/45036>  
Invited lecturer at the XVIII international summer school in Materials Science & Technology (IMRE-Cuba).
- 2009 Media news in *Physics World*, “Nano-equation unveiled”, December 2009, page 5.  
<http://physicsworld.com/cws/article/news/40884>  
<http://nanotechweb.org/cws/article/tech/40889>  
<http://www.nanowerk.com/spotlight/spotid=13340.php>  
<http://www.nanowerk.com/spotlight/spotid=10153.php>

**J. Invited Talks**

- University of Arkansas at Little Rock (USA) 05/23/2017, Nano-Alloys
- XXV International Materials Research Congress 2016 (Cancun, Mexico), 08/15/2016, Symposium A7: Order-disorder phase transitions in nano-alloys
- North West Vista College (USA) 11/04/2015, From the Stone Age to the Nano Age.
- Xavier University of Louisiana (USA) 03/02/2015, Nanoalloys: from thermodynamics to emergent applications.
- 2<sup>nd</sup> Meeting of the American Initiative on Metal Clusters and Nanoalloys (San Antonio, USA), 02/28/2015, Bimetallic nanoalloys: a thermodynamic insight
- University of North Florida (USA) 02/23/2015, Nanoalloys: from thermodynamics to emergent applications.
- CINVESTAV (Mexico) 07/29/2014, Nanoalloys & renewable energies.

**Grégory Guisbiers, Ph.D.**  
**Assistant Professor-Tenure Track**

- Kuwait Institute for Scientific Research (Kuwait) 06/02/2014, Nanoalloys: From thermodynamics to emergent applications.
- Universidad Autonoma de San Luis Potosi (Mexico) 08/21/2013, Thermodynamics of nanoalloys.
- XXII International Materials Research Congress 2013 (Cancun, Mexico), 08/15/2013, Symposium 1A & 1E : Thermodynamics of nanoalloys
- IEEE-International Nanoelectronics Conference 2013 (Singapore), 1/4/2013, Symposium n°4 Nano-sciences, Selenium surface energy determination from size-dependent considerations
- GDR Nanoalloys (University of Orléans, France), 12/17/2012, Theoretical study of nanomaterial properties by nanothermodynamics
- XX International Materials Research Congress 2011 (Cancun, Mexico), 08/15/2011, Symposium n°1-Nanostructured materials and nanotechnology: Size and shape dependencies of nanomaterial properties: Thermodynamic considerations
- University of Lille 1 (France), 11/25/2010, Material properties and thermodynamics at the nanoscale.
- 150<sup>th</sup> Orbit of Alexander Von Humboldt, Symposium on low-dimensional systems (Casa Von Humboldt, Cuba), 06/08/2010, Size effect on material properties
- University of Havana (Cuba), 10/13/2009, Nanoscale thermodynamics on the back of an envelope.
- Catholic University of Louvain (Belgium), 11/27/2008: Investigation on the nanomaterial properties.
- Institute of Electronics, Microelectronics and Nanotechnology (France), 12/21/2007: Residual stresses, melting temperatures and materials selection at the nanoscale.
- University of Aveiro (Portugal), 11/23/2007: Modelling of residual stresses. Macroscopic and nanoscopic approaches.
- Leibniz Institute for New Materials (Germany), 10/25/2007: Residual stresses, melting temperatures and materials selection at the nanoscale.
- University of Aveiro (Portugal), 10/10/2007: Residual stresses, melting temperatures and materials selection at the nanoscale.
- University of Coimbra (Portugal), 07/16/2007: Residual stresses: macroscopic and nanoscopic approaches.
- Institute of High Performance Computing (Singapore), 09/05/2006: Residual stresses in thin films and melting temperature of nanograins.
- Materia Nova (Belgium), 02/14/2006: Residual stresses in thin films.
- University of Mons (Belgium), 08/17/2005: Residual stresses.
- Wallonia Space Logistics (Belgium), 02/11/2005: Oofelie Users' Day, Simulation of residual stresses with Oofelie's software.
- Catholic University of Louvain (Belgium), 04/27/2004: Residual stresses in thin films.

**Grégory Guisbiers, Ph.D.**  
**Assistant Professor-Tenure Track**

**K. Service to University**

- Member, Non-thesis Master Defense Committee (2), since 2017
- Member, Student Research & Creative Projects Committee, since 2017
- Member, Pre-Medical Advisory Committee, since 2017
- Member, Physics Renovation Building Committee (2017-2018)
- Supervisor, Arkansas Science Olympiad (2018)

**L. Service to Profession**

- Editorial Appointments
  - Editorial board member : Metals (2014-present) – IF=1.704
  - Guest editor (2012) : Journal of Nanomaterials – IF=2.207 – Special issue on “Nanomaterial Properties: Size and Shape Dependencies”
- Reviewer: <https://publons.com/author/1332632/gregory-guisbiers#profile>
- Symposium organizers
  - XXVIII International Materials Research Congress (Symposium-Nanoalloys: Theory, Synthesis and Characterization) 18<sup>th</sup> – 23<sup>rd</sup> August 2019
  - XXVII International Materials Research Congress (Symposium-Nanoalloys: Theory, Synthesis and Characterization) 19<sup>th</sup> - 24<sup>th</sup> August 2018
  - XXVI International Materials Research Congress (Symposium-Nanoalloys: Theory, Synthesis and Characterization) 20<sup>th</sup> - 25<sup>th</sup> August 2017
- Conference chairs
  - XXV International Materials Research Congress (Symposium A7. Nanostructured Materials and Nanotechnology) held in Cancun between 14<sup>th</sup> - 19<sup>th</sup> August 2016
  - IEEE-INEC 2013 conference held in Singapore between 2<sup>nd</sup> - 4<sup>th</sup> January 2013
  - XX International Materials Research Congress (Symposium n°1-Nanostructured materials and nanotechnology) held in Cancun between 14<sup>th</sup> - 19<sup>th</sup> August 2011
- Grant reviewer
  - USA : ACS Petroleum Research Funds
  - France : CNRS
  - Romania : UEFISCDI

**M. Collaborators**

- USA:
  - Dr. Arturo Ayon & Dr. Arturo Ponce (*Univ. of Texas - San Antonio*);
  - Dr. Thomas Webster (*Northeastern Univ.*);
  - Dr. Younan Xia (*Georgia Tech*);
- International:
  - Dr. Steve Arscott (*IEMN-CNRS, France*);
  - Dr. Etienne Herth (*Univ. of Paris, France*);
  - Dr. Sergio Mejia-Rosales (*Univ. of Nuevo Leon, Mexico*);
  - Dr. José-Luis Rodriguez-Lopez (*IPICYT, Mexico*);

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**N. Research Support**

Pending research support

- *Mg-based Nano-alloys: Theory & Synthesis*  
Role: PI  
Agency: DoD - Army Research Office
- *Fundamental Study of Nickel-based Binary Nano-Alloys by using Nano-thermodynamics and Transmission Electron Microscopy*  
Role: PI  
Agency: NSF – Division of Materials – Topical Materials Research Programs
- *UTSA Foundry for Quantum and Synthetic Nanomaterials*  
Role: co-PI  
Agency: NSF – Enabling Quantum Leap (Q-AMASE-i)
- *Experimental Investigation of Electric and Magnetic Field of Nanowires Beaded by Gold Nanoparticles in Silicon Wafers*  
Role: co-PI  
Agency: NASA

Current research support

- *Signature experience research award*  
Agency: University of Arkansas at Little Rock  
Award amount: \$1,000.00      Award Period: 01/01/2018-04/12/2018
- *Start-up package*  
Agency: University of Arkansas at Little Rock  
Award amount: \$100,000.00      Award Period: 08/16/2017-08/15/2020

Completed research support

- *Enhanced anti-cancer treatments inspired by bioessential elements: selenium and tellurium nano-alloys as potential therapeutic agents.*  
Role: Co-PI  
Agency: San Antonio Area Foundation Biomedical Research Grant  
Award Amount: \$22,000      Award Period: 06/01/2015-05/31/2016
- *Development of a third generation solar cell based on quantum dots.*  
Role: PI  
Agency: Wallonia-Brussels Organisation  
Award Amount: €60,000      Award Period: 03/01/2012-03/01/2015
- *Effects of size and shape on the mechanical properties of nanostructured metals.*  
Role: PI  
Agency: Belgian Federal Science Policy Office  
Award Amount: €145,000      Award Period: 02/01/2010-01/31/2012
- *Understanding the role of residual stresses in thin films.*  
Role: PI  
Agency: Fundação para a Ciência e a Tecnologia  
Award Amount: €54,000      Award Period: 03/01/2007-02/28/2008