

# Nabil Kahouadji

*Curriculum Vitae*, January 17, 2019.

<http://homepages.neiu.edu/~nkahouad>

## Academic Positions

- 2016 – Present **Assistant Professor**, *Mathematics Department, Northeastern Illinois University*, Chicago, IL.  
2012 – 2016 **Lecturer**, *Mathematics Department, Northwestern University*, Evanston, IL.  
2015 – 2016 **Instructor**, *The SESAME Program, The University of Chicago*, Chicago, IL.  
2010 – 2012 **CRM-ISM Postdoctoral Fellow**, *Centre de Recherches Mathématiques – Institut des Sciences Mathématiques, hosted at McGill University, supervised by Niky Kamran*, Montréal, QC, Canada.  
2009 – 2010 **Attaché Temporaire d’Enseignement et de Recherche (Research and Teaching Post-doctoral Fellow)**, *Université Paris Diderot - Paris VII*, Paris, France.

## Education

- 2006 – 2009 **Doctorat de Mathématiques (Ph.D.)**, *Université Paris Diderot - Paris VII (France)*, **directed** by Frédéric Hélein, **reviewed** by Robert L. Bryant (MSRI-University of California at Berkeley (USA)) and Jean-Marie Morvan (Université Claude Bernard - Lyon I (France)), **defended** on October 22, 2009 at Institut de Mathématiques de Jussieu. **Honors** : Très Honorable (Highest honors), **Ph.D. Thesis’s Title**: Conservation Laws and Generalized Isometric Embeddings.  
2004 – 2006 **Master de Sciences et Technologies (M.S.)**, *Université Pierre et Marie Curie - Paris VI (France)*, **field**: Mathématiques et Applications, **specialty**: Mathématiques Fondamentales, **orientation**: Recherche (Research). **Honors**: Très Bien (Highest honors).  
2001 – 2004 **Licence de Mathématiques (B.S.)**, *Université Pierre et Marie Curie - Paris VI (France)*.

## Awards and Honors

- 2016 – 2017 Faculty Excellence in Teaching Award, Northeastern Illinois University.  
2015 – 2016 ASG Faculty Honor Roll for Excellence in Teaching, Northwestern University.  
2014 – 2015 Mathematics Department Excellence in Teaching Award, Northwestern University.

## Major Areas of Research and Professional Interests

- Differential geometry, geometric analysis and partial differential equations.
- Actuarial sciences, probability, statistics, mathematical modeling and fluid mechanics.

## Research Publications

- [7] N. Kahouadji, N. Kamran, and K. Tenenblat, *Local Isometric Immersions of Pseudo-spherical Surfaces and  $k$ -th Order Evolution Equations*, to appear in *Communications in Contemporary Mathematics* (2018). Arxiv:1701.08004v1 [math.DG].
- [6] N. Kahouadji, N. Kamran, and K. Tenenblat, *Second-order equations and local isometric immersions of pseudo-spherical surfaces*, *Comm. Anal. Geom.*, **24** (2016), no. 3, pp. 605-643.
- [5] N. Kahouadji, N. Kamran, and Keti Tenenblat, *Local Isometric immersions of pseudo-spherical surfaces and evolution equations*, *Fields Inst. Commun.*, **75** (2015), pp. 369-381.

[4] N. Kahouadji, *Construction of local conservation laws by generalized isometric embedding of vector bundles*, *Asian J. Math.*, **15**, no. 4 (2011), pp.521-538.

Ph.D. Thesis [3] N. Kahouadji, *Conservation laws and generalized isometric embeddings*, October 2009, Thèse en Ligne (T.E.L): <https://tel.archives-ouvertes.fr/tel-00427033>.

[2] N. Kahouadji, *Energy-Momentum's local conservation laws and generalized isometric embeddings of vector bundles*, *Geometry, Topology, QFT and Cosmology*, Travaux en cours en Physique-Mathématiques, Hermann (2009), no. 76, pp. 45-70.

[1] N. Kahouadji, *Cartan-Kähler theory and application to local isometric and conformal embeddings*, *Systèmes Intégrables et Théorie Quantique des Champs*, Travaux en cours en Physique-Mathématiques, Herman (2008), no. 75, pp. 295-316.

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## Fellowships and Grants

- Oct 24, 2018 Centre de Recherche Mathématiques (CRM) travel grant, CAD 850, for an invited talk at the *A Celebration of Geometry, Analysis and Physics*, June 10-14, 2019, Montréal, QC, Canada.
- Feb 13, 2018 American Mathematical Society Travel Grant Program for International Congress of Mathematicians ICM 2018 award, \$3,300, August 1-9, 2018, in Rio de Janeiro, Brazil.
- Sep 13, 2017 NEIU Research/Creative Activities Travel Fund \$1,300, talk at the special session *Geometry of Differential Equations, Real and Complex* of the *Mathematical Congress of the Americas* - July 24-28, 2017, Montreal, Canada.
- Jun 2017 ChicagoCHEC Faculty Summer Stipend, \$1,500, for mentoring NEIU graduate student Stephanie Webb on the research project *Geometric Modeling of Tumor Cells and MRI Modeling*.
- Apr 4, 2017 Geometry and Algebra of PDEs Conference Grant - local expenses (full lodging) and conference fees (NOK 2200 approximately \$265) - invited talk hosted in UiT Arctic University of Norway, Tromsø, Norway, June 6–10, 2017.
- 2010 – 2012 CRM-ISM Postdoctoral Fellowship, 40,000 CAD per academic year, hosted at McGill University, Montréal, QC, Canada
- 2006 – 2009 Allocation de Recherche, 14,500 € per academic year, Ministère de l'Enseignement Supérieur et de la Recherche; Université Paris Diderot-Paris VII, France

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## Recent Invited Talks

- Jan 18, 2019 When nature surprises our geometric intuition, *Futures Unlimited*, all-day STEM career conference for 8th grade girls, hosted at Oakton Community College, USA.
- Aug 14, 2018 Seminario de Geometria, Universidade de Brasilia, Brasilia, Brazil.
- Aug 7, 2018 Geometry session of the International Congress of Mathematicians 2018 - Aug 1-9, 2018, Rio de Janeiro, Brazil.
- Jun 7, 2018 Symmetry and Perturbation Theory Conference - June 3-10, 2018, Pula, Italy.
- Mar 14, 2018 When nature surprises our geometric intuition, Northside College Preparatory High School, Chicago, USA.
- Nov 17, 2017 NEIU 8th Faculty Research and Creative Activities Symposium, Chicago, USA.
- Jul 25, 2017 Special session "Geometry of Differential Equations, Real and Complex" of the Mathematical Congress of the Americas conference, Montreal, QC, Canada.
- Jun 12, 2017 Séminaire de Géométrie et Dynamiques, Institut de Mathématique de Jussieu-Paris Rive Gauche, Université Paris Diderot, Paris, France.
- Jun 5, 2017 Geometry and Algebra of PDEs, UiT the Arctic University of Norway - Tromsø, 6-10 June 2017, Tromsø, Norway.
- Jun 2, 2017 Séminaire de Géométrie et Physique Mathématiques, Institut de Mathématique de Jussieu-Paris Rive Gauche, Université Paris Diderot, Paris, France.

- Jan 27, 2017 *On the geometry of pseudo-spherical surfaces*, Deerfield High School, District 113, USA.  
Nov 18, 2016 NEIU 7th Faculty Research and Creative Activities Symposium, Chicago, USA.

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## Academic Membership

2017 – Present American Mathematical Society.

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## Recent Research Services

- Oct 26, 2018 Organizing and Scientific Chair of Women in Science II conference, to be held at Northeastern Illinois University.
- April 13, 2018 Co-organizer (with Dr. Aaron Schirmer) of the 20th Annual Chicago Symposium Series - Excellence in Teaching Mathematics and Science: Research and Practice.
- Sep 18-19, 2018 Co-organizer of the Women in Science I conference, Northeastern Illinois University.
- Mar 30, 2017 Served as a primary reviewer for Cycle 3 of the Chicago CHEC Research Incubator and Catalyst Grant Funding Program and participated in the in-person, NIH-style review panel that was held at UIC on April 10th, 2017.
- 2016 – Present Organizer of the Applied Math Seminar at Northeastern Illinois University, Chicago, IL.
- 2016 – Present Co-organizer of the *9th, 10th, 11th and 12th Mathematical and Statistical Modeling of Complex Systems Workshop* at Northeastern Illinois University, Chicago, IL.
- Dec 2016 Reviewer for *Stochastic Modeling and Applications Journal* (1 article).

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## Employment History and Teaching Experience

### Northeastern Illinois University (Assistant Professor of Mathematics, Chicago, IL, USA)

- 2016 – Present
- Math 472 - *Simulation Modeling and Analysis*, Fall 2016.
  - Math 441 - *Multivariate Statistical Analysis*, Spring 2017.
  - Math 421 - *Modern Geometry*, Spring 2018.
  - Math 406 - *Linear Programming: Theory and Practice*, Fall 2018.
  - Math 347 - *Probability for Actuaries with Actuarial Exam Preparation*, Spring 2019.
  - Math 336 - *Inferential Statistics*, Spring 2018.
  - Math 334 - *Mathematical Statistics I*, Fall 2017.
  - Math 275 - *Applied and Computational Statistics*, Fall 2018, 2017 and 2016.
  - Math 149 - *Mathematics for Elementary Teachers I*, Spring 2017.
  - Math 112 - *Statistics in Daily Life*, Fall 2017, Spring 2017 and Fall 2017.

### The University of Chicago (Instructor, Chicago, IL, USA)

- Autumn 2015 • Math 50400 - *Probability for Elementary School Teachers*.  
Summer 2015 • Math 51100 - *Calculus for Elementary School Teachers*.

### Northwestern University (Lecturer, Evanston, IL, USA)

- 2012 – 2016
- Math 385 - *Probability and Statistics for MMSS*, Fall 2015.
  - Math 381 - *Fourier Analysis and Boundary Value Problems for ISP*, Fall 2015 and 2014.
  - Math 368 - *Introduction to Optimization*, Spring 2016 (2 sections), Winter 2016, Spring 2015, Winter 2015 and Winter 2014.
  - Math 351 - *Fourier Analysis and Boundary Value Problems*, Fall 2012.
  - Math 340 - *Geometry*, Spring 2015 and 2014.

- Math 240 - *Linear Algebra*, Spring 2014.
- Math 230 - *Differential Calculus of Multivariable Functions*, Winter 2015 (2 sections) and 2014.
- Math 202 - *Finite Mathematics*, Winter 2016 (School of Professional Studies), Fall 2014, Spring 2013, Winter 2013 (2 sections) and Fall 2012.

#### McGill University (CRM-ISM Postdoctoral Fellow, Montréal, QC, Canada)

- 2010 – 2012
- Math 133 - *Linear Algebra and Geometry*, Summer 2012.
  - Math 111 - *Mathematics for Education Students*, Winter 2012 and Winter 2011.

#### Université Paris Diderot - Paris 7, (“A.T.E.R” Teaching & Research Fellow, Paris, France)

- 2009 – 2010
- MI3 - *Algebra & Analysis III*, Fall 2009
  - CS3 - *Parametrized Curves and Surfaces*, Fall 2009.

#### Université Paris Diderot - Paris 7, (“Monitorat” Graduate Assistant, Paris, France)

- 2006 – 2009
- *Exterior Differential Calculus and Differential Geometry*, 2<sup>nd</sup>-year Master students in collaboration with Frédéric Hélein, Fall 2008.
  - MP4 - *Algebra and Analysis III*, Fall 2007.
  - MPQ1 - *Algebra and Analysis I*, Fall 2006.
  - Mentored six 1<sup>st</sup>-year undergraduate math memoirs (**MK2**): The Sphere’s Geodesics, and The Lotka-Volterra System (winter 2008), The Matrix Tool, The number  $\pi$ , Planet’s Movement, and Cartography (winter 2007).

#### Université Pierre et Marie Curie - Paris 6 (“Tutor”, Paris, France)

- 2003 – 2006
- Tutor in mathematics, physics, and computer sciences.

## References

- Professor, Dept. Chair **Lidia Filus**, *Northeastern Illinois University, USA.* .  
Email: l-filus@neiu.edu
- Professor **Niky Kamran**, *McGill University, Canada.*  
Email: nkamran@math.mcgill.ca
- Professor **Keti Tenenblat**, *Universidade de Brasília, Brazil.*  
e-mail: e-mail:K.Tenenblat@mat.unb.br
- Professor **Steven Zelditch**, *Northwestern University, USA.*  
e-mail: s-zelditch@northwestern.edu
- Professor **Frédéric Hélein**, *Université Paris Diderot - Paris VII, France.*  
Email: helein@math.jussieu.fr