

## Curriculum Vitae

Wiesława Nizioł

École Normale Supérieure de Lyon,  
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### Education

Warsaw University 1980-84; M.Sc. *summa cum laude*, Computer Science, 1984;  
thesis: "Metody projektowania i specyfikacji algorytmow systolicznych",  
thesis advisor: Wojciech Rytter.  
Stanford University 1985-86; Ph.D. program, Computer Science.  
Princeton University 1986-91; Ph.D., Mathematics, October 1991;  
thesis: "On a cohomological functor associated to crystalline  
representations", thesis advisor: Gerd Faltings.

**Area of Specialization** : Arithmetic Algebraic Geometry

### Employment

Assistant Professor, Institute of Theory of Computations, Warsaw University, 1984-88.  
Research and Teaching Assistant, Princeton University, Mathematics Department, 1987-1990.  
L. E. Dickson Instructor, University of Chicago, 1992-96.  
D. Jackson Assistant Professor, University of Minnesota, 1993-94 .  
Assistant Professor, University of Utah, 1996-2000.  
Associate Professor, University of Utah, 2000-2011.  
Professor, University of Utah, 2011-2013.  
Directrice de Recherche, CNRS, ENS-Lyon, 2012-

### Visiting Positions

Postdoctoral Fellow, Harvard University, 1991-92.  
Max-Planck Institut für Mathematik, 1996-1997.  
IHP, Paris, April 1997, January-March 2010.  
Strasbourg University, CNRS Fellowship, May-July 2002.  
University of Münster, June 2003.  
Cambridge University, March 2004.  
Tokyo University, June, 2004.  
Berlin Mathematical School, Summer 2009.  
Institut de Mathématiques de Jussieu, November-December 2008, April-June 2010.  
IAS, Princeton, Visitor, October-December 2010.  
Fields Institute, Toronto, April-May, 2012.  
BICMR, Beijing, October, 2012.  
University of Padova, May, October 2013.  
MSRI, Research Professor, Fall 2014.  
Shanghai Center for Mathematical Sciences, Fall 2016.  
Tata Institute, Bombay, February 2017.  
Mittag-Leffler Institute, Stockholm, April 2017.  
IAS, Princeton, Member, Fall 2017.  
Hausdorff Center for Mathematics, Bonn, April, 2018.

Banach Institute, Warsaw, Simons Semester, November 2018.  
 Princeton University, December 2018.  
 MSRI, Research Professor, Spring 2019.

## Honors

- Polish Computer Science Society Award for The Best Master Thesis in Computer Science, 1984, "Metody projektowania i specyfikacji algorytmów systolicznych".
- A. Sloan Research Fellowship, 1998-2001.
- ICM 2006 Invited Lecture in Number Theory.

## Grants

- (1) NSF grant: 1998-2001, 2001-2004, 2004-2007, 2007-2010, 2010-2013.
- (2) Member of ANR grant "Percolator", 2014-2018.

## Publications

- (1) *Cohomology of crystalline representations*, Duke Math. Journal **3** (1993), 747–791.
- (2) *On the image of  $p$ -adic regulator*, Invent. Math. **127** (1997), 375–400.
- (3) *Duality in the cohomology of crystalline local systems*, Comp. Math. **109** (1997), 67–97.
- (4) *Crystalline Conjecture via  $K$ -theory*, Ann. Scient. École Norm. Sup. **31** (1998), 659–681.
- (5) *Cohomology of crystalline smooth sheaves*, Comp. Math. **129** (2001), 123–147.
- (6) *Toric singularities: log-blow-ups and resolutions*, J. Algebraic Geom. **15** (2006), 1–29.
- (7)  *$p$ -adic motivic cohomology and arithmetic*, International Congress of Mathematicians. Vol. II, 459–472, Eur. Math. Soc., Zürich, 2006.
- (8) *Semistable Conjecture via  $K$ -theory*, Duke Math. J. **141** (2008), no. 1, 151–178.
- (9)  *$K$ -theory of log-schemes I*, Doc. Math. **13** (2008), 505–551.
- (10) *On uniqueness of  $p$ -adic period morphisms*, Pure Appl. Math. Q. **5** (2009), no. 1, 163–212.
- (11)  *$K$ -theory of log-schemes II: log-syntomic  $K$ -theory*, Adv. Math. **230** (2012), 1646–1672.
- (12) *Syntomic cohomology and regulators for varieties over  $p$ -adic fields* (with Jan Nekovář), Algebra and Number Theory **10** (2016), no.8, 1695–1790.
- (13) *Syntomic complexes and  $p$ -adic nearby cycles*, (with Pierre Colmez), Invent. Math. **208** (2017), 1–107.
- (14) *On  $p$ -adic absolute Hodge cohomology and syntomic coefficients, I*, (with Frédéric Déglise), Comment. Math. Helv. **93** (2018), no. 1, 71–131.
- (15) *Syntomic cohomology and  $p$ -adic motivic cohomology*, (with Veronika Ertl), Algebr. Geom. **6** (2019), no. 1, 100–131.
- (16) *Geometric syntomic cohomology and vector bundles on the Fargues-Fontaine curve*, preprint, 2016.
- (17) *On syntomic regulators I: constructions*, preprint, 2016.
- (18) *Sur la cohomologie  $p$ -adique de la tour de Drinfeld, le cas de dimension 1*, (with Pierre Colmez and Gabriel Dospinescu), preprint, 2017.
- (19) *On the cohomology of the affine space*, (with Pierre Colmez), preprint, 2017.
- (20) *Cohomology of  $p$ -adic Stein spaces*, (with Pierre Colmez and Gabriel Dospinescu), preprint, 2018.
- (21) *On uniqueness of  $p$ -adic period morphisms, II*, preprint, 2018.
- (22) *Cohomologie des courbes analytiques  $p$ -adiques*, (with Pierre Colmez and Gabriel Dospinescu), in preparation.

## Talks

- 1997: Poincaré Institute, conference on  $p$ -adic geometry; Max-Planck Institut, Muenster, Strasburg, seminars.
- 1998: ICM 1998 satellite conference on Algebraic Geometry, Essen.

- 1999: CalTech, number theory seminar; Great Lakes K-theory Conference, V; CRM workshop on Arithmetic Geometry, Montreal.
- 2000: Toulouse, Algebraic  $K$ -theory and homotopy theory of schemes; Azumino, Japan, Algebraic Geometry 2000.
- 2002: Strasbourg, Number Theory seminar.
- 2003: University of Southern California, colloquium; University of Muenster, Number Theory seminar; University of Chicago, Algebraic Geometry seminar; BIRS, “ $p$ -adic variation of motives”.
- 2004: University of Arizona, Number Theory seminar; Cambridge University, Number Theory seminar; Nottingham University, Number Theory seminar; AMS meeting, USC, “Arithmetic Geometry and K-theory”; Tokyo University, Number Theory seminar; Kyoto University, Number Theory seminar; Research Symposium “L-functions and Galois Representations”, Univ. of Durham; AMS meeting, Northwestern University, “Applications of Motives”; AMS meeting, University of New Mexico, “Arithmetic Geometry”.
- 2005: Joint Columbia-CUNY-NYU Number Theory seminar; University of Florida, Arithmetic Geometry conference.
- 2006: Invited Lecture, Number Theory, ICM 2006, Madrid; AMS Meeting, Salt Lake City, “Number Theory”; BYU, colloquium.
- 2007: Joint Mathematics Meeting, New Orleans, “Arithmetic Geometry”; AMS meeting, Tucson, “Number Theory”.
- 2008: University of Chicago, Algebraic Geometry seminar; USC, Algebra seminar; Jussieu, Number Theory Seminar.
- 2009: Conference “ $p$ -adic geometry and homotopy theory”, Loen, Norway; Humboldt University, Arithmetic Geometry Seminar.
- 2010: Conference in honour of Jean-Marc Fontaine, IHP, Paris; Conference LogConf2010, Bordeaux, France, Colloquium, Berkeley.
- 2011: WIN2, Banff; Conference, “Cycles on Modular Varieties”, Banff; “Automorphic forms and Galois representations”, Durham.
- 2012: University of Toronto, Number Theory Seminar; BIRCM, Beijing; Conference “ $p$ -adic Arithmetic Geometry”, Lyon.
- 2013: Number Theory Seminar, Padova; Number Theory Seminar, John Hopkins University; Number Theory Seminar, University of Chicago; Number Theory Seminar, Bordeaux; WIN3, CIRM, Luminy.
- 2014: Hot Topics “Perfectoid spaces and their applications”, MSRI; Conference “Motives and Galois groups”, Regensburg; Conference “Arithmétique des variétés de Shimura et des formes automorphes et applications”, CIRM (Luminy, France); Journées Solstice d’été 2014, Jussieu, Paris; Seminar, MSRI.
- 2015: London Number Theory Seminar; conference “Non-Archimedean Geometry and its Applications”, University of Michigan; 2015 Summer Research Institute on Algebraic Geometry, Salt Lake City; Journées arithmétiques à Lyon; Non-Archimedean geometry and applications, Oberwolfach.
- 2016: Indo-French program for mathematics, Chennai; HCM workshop: recent developments in integral  $p$ -adic cohomologies, Bonn; Number Theory Seminar, Milan; conference “Regulators IV” in Paris - IMJ-PRG; Séminaire de Géométrie Arithmétique Paris-Pékin-Tokyo, - IHES; SAGA, Orsay; The Second Sino-French Conference in Arithmetic Geometry, Sanya, China.
- 2017: Tata Institute (colloquium et 1 exposé); Mittag-Leffler Institute Seminar; Grothendieck seminar, Zürich; Simons Symposium, Schloss Elmau; University of British Columbia (2 exposés); Conference “K-theory and Arithmetic”, Bedlewo; IAS/Princeton Number Theory Seminar; Joint CNN Number Theory Seminar, Columbia University; Algebra and Number Theory Day, University of Maryland; BC-MIT Number Theory Seminar.
- 2018: GRFA, Jussieu; University of Utah (seminar and colloquium); Hot Topics, “Homological conjectures”, MSRI; Arbeitsgemeinschaft, “Topological Hochschild Homology”, Oberwolfach;

Algebraische Zahlentheorie, Oberwolfach; conference, "Correspondance de Langlands  $p$ -adique, variétés de Shimura et perfectoides", Luminy; conference, "Arithmetic Algebraic Geometry", Poznan; Simons Semester "Varieties: Arithmetic and transformations", Banach Institute, Warsaw; "Syntomic cohomology and  $p$ -adic Hodge Theory", Oberwolfach Seminar; IAS/Princeton Number Theory Seminar.

### Professional Service

- (1) Organization of conferences.
  - 1999: co-organizer of a Special Session on Arithmetic Geometry for the AMS meeting at the University of Utah.
  - 2007: co-organizer of a Special Session on Arithmetic Geometry for the joint PTM-AMS meeting in Warsaw.
  - 2011: session co-leader, "K-theory and Number Theory", WIN2, Banff.
  - 2012: co-organizer of a conference, "Algebraic K-theory and Arithmetic", Bedlewo, Poland.
  - 2013: co-organizer of a conference "Arithmetic Geometry", Warsaw; session co-leader, " $p$ -adic geometry, syntomic cohomology, and applications to Number Theory", WIN3, CIRM, Luminy.
  - 2014: scientific committee, "Conference on Arithmetic Algebraic Geometry on the occasion of Gerd Faltings' 60'th birthday", Bonn.
  - 2017: co-organizer of a conference "Algebraic K-theory and Arithmetic", Bedlewo, Pologne.
  - 2018: co-organizer, hot topics conference in MSRI "The homological conjectures".
  - 2018: co-organizer of a trimester "Algebraic groups and geometrization of the Langlands program", ENS Lyon.
  - 2018: co-organizer of a conference for the 60'th birthday of Grzegorz Banaszak, Poznan, Pologne.
  - 2018: organizer of an Oberwolfach Seminar, Oberwolfach, "Syntomic cohomology and  $p$ -adic Hodge Theory".
- (2) Panels and hiring committees.
  - NSF, member of three Proposal-Evaluation Panels.
  - 2016, Professor, Lille.
  - 2017, Maitre de conférence, Paris 6.
  - 2018, Professor, Lyon 1 and Versailles.
- (3) Thesis jury member
  - 2013 Giovanni di Matteo, student of Laurent Berger, ENS-Lyon.
  - 2016 Jin Fang Zhou, student of Frederic Déglise, ENS-Lyon.
  - 2017 Arthur-César Le Bras, student of Laurent Fargues and Michael Harris, Paris 6.
  - 2018 Matthew Morrow, HDR, Paris 6.
- (4) Thesis report
  - 2018 Matthew Morrow, HDR, Paris 6.
- (5) Refereeing: American Journal of Mathematics, Ann. Sci. École Norm. Sup., Astérisque, Bulletin de la Société Mathématique de France, Compositio Mathematica, Documenta Math., Expo. Math., Invent. Math., IMRL, Journal Inst. Math. Jussieu, Journal of Number Theory, Manuscripta Mathematica, Tunisian Journal of Mathematics.

### Teaching

- (1) Lecture series
  - $p$ -adic cohomology of  $p$ -adic symmetric spaces; Fudan, Shanghai, 2016.
- (2) Graduate courses
  - Perfectoid Spaces; Utah.
  - Tate's Thesis; Utah;
  - Modular Forms; Utah;
  - Modular Forms and Hecke Algebras; BMS, Berlin;

- K-theory; Utah;
  - Analysis of Algorithms; Warsaw;
  - Algorithmic Logic; Warsaw.
- (3) Undergraduate courses
- Calculus, Vector Calculus; Utah, Minnesota, Chicago;
  - Honor Calculus; Chicago;
  - Real Analysis; Utah, Chicago;
  - Abstract Algebra; Chicago;
  - Linear Algebra; Utah;
  - Basic Number Theory, Algebraic Number Theory; Utah;
  - Statistics; Utah;

### Study groups

- 2004-2005: graduate course on p-adic Galois representations;
- summer 2006: graduate course on p-adic modular forms;
- 2006-2007: study group on p-adic modular forms;
- 2007-2008: study group on the proof of Serres conjecture;
- spring 2009: study group on Wiles proof of Fermat Last Theorem;
- fall 2009: study group on p-adic local Langlands for  $GL_2$ ;
- spring 2011: study group on cohomology of p-adic symmetric spaces;
- fall 2011: study group on adic spaces;
- spring 2012: study group on perfectoid spaces;
- fall 2012: study group on global-local compatibility of Emerton;
- fall 2013: study group on Scholze-Weinstein.

### M2 students

Sally Gilles, ENS-Lyon, September 2017.

### PhD students

- (1) C-C Chen, 2009-2014, Utah. PhD thesis: "Overconvergent Chern classes and higher cycle classes".
- (2) Veronika Ertl, 2009-2014, Utah. PhD thesis: "Integral  $p$ -adic comparison theorems".
- (3) Sally Gilles, ENS-Lyon, 2017-.

### Mentoring

REU supervisor: 2001.

Postdocs: Krzysztof Klosin, Bo-Ha Im, Remi Lodh, University of Utah.