

# CURRICULUM VITAE

DANIEL MATEI

## PERSONAL

**Date and Place of Birth:** September 9, 1967, in Craiova, Romania.

**Nationality:** Romanian.

**Family:** Married, two children.

## WORK ADDRESS

Institute of Mathematics “*Simion Stoilow*” of the Romanian Academy  
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## HOME ADDRESS

Str. Străbună, Nr. 2–12, Bl. A1, Sc. A, Ap. 3, Sector 1, Bucharest, Romania  
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## EDUCATION

**Doctoral Studies:** Northeastern Univ., Boston, 1993–1999, Ph.D. in Math., Sept. 1999.  
Thesis: *Fundamental groups of links and arrangements*. Advisor: *Alexandru Suciu*

**Graduate Studies:** Univ. of Bucharest, 1990–1991, M.S. in Mathematics, June 1991.  
Master Thesis: *Polynomial invariants of knots and links*. Advisor: *Stefan Papadima*

**Undergraduate Studies:** Univ. of Bucharest, 1986–1990, B.S. in Mathematics, June 1990.  
Bachelor Thesis: *Moduli spaces of Yang-Mills connections*. Advisor: *Kostake Teleman*

## EMPLOYMENT

Researcher	Inst. of Math., Bucharest	June 2004–Permanent
Postdoctoral Fellow	MSRI, Berkeley	August–December 2004
Assistant Professor	University of Tokyo	Oct. 2002–Feb. 2004
Assistant Professor	University of Rochester	Sept. 1999–June 2002
Teaching Assistant	Northeastern University	Sept. 1993–Aug. 1999
Research Assistant	Inst. of Math., Bucharest	Sept. 1991–Aug. 1993
Teaching Assistant	University of Bucharest	Sept. 1990–June 1991

## VISITING POSITIONS

Visiting Researcher	Inst. J. Fourier, Grenoble	Nov. 2010–Dec. 2010
Visiting Researcher	Scuola Normale Pisa	May 2010–June 2010
Visiting Researcher	Université de Pau, CNRS	Nov. 2009–Jan. 2010
Research Fellow	University of Zaragoza	May 2006–Feb. 2007
Visiting Researcher	University of Tokyo	Oct. 2005–March 2006
Visiting Researcher	Inst. J. Fourier, Grenoble	May 2005–June 2005
Visiting Scholar	Northeastern University	February–May 2004

## PUBLICATIONS and SELECTED PRESENTATIONS

### Published papers:

1. *Homotopy types of complements of 2-arrangements in  $\mathbb{R}^4$* , with A. Suciu, *Topology* 39 (2000), no. 1, 61–88;
2. *Cohomology rings and nilpotent quotients of real and complex arrangements*, with A. Suciu, in *Arrangements - Tokyo 1998*, Adv. Stud. in Pure Math., vol. 27 (2000), Math. Soc. Japan, Tokyo, 185–215;
3. *Hall Invariants, homology of subgroups and characteristic varieties*, with A. Suciu, *International Math. Research Notices* 9 (2002), 465–503;
4. *Counting homomorphisms onto finite solvable groups*, with A. Suciu, *J. of Algebra* 286 (2005), 161–186.
5. *Pro- $p$  link groups and  $p$ -homology groups*, with J. Hillman, M. Morishita, in *Primes and knots*, Contemp. Math. 416 (2006), 121–136, A.M.S.
6. *Massey products of complex hypersurface complements*, in *Singularity theory and its applications*, Adv. Stud. in Pure Math., vol. 43 (2006), Math. Soc. Japan, 205–219;
7. *Homology of finite index subgroups of finitely presented groups*, *An. Stiint. Univ. Al. I. Cuza Iasi. Mat.* 53 (2007), 241–276.

### Papers in course of publication:

1. *Cohomology algebra of plane curves, weak combinatorial type, and formality*, with J.I.Cogolludo-Agustin; [arXiv:0711.1951](https://arxiv.org/abs/0711.1951), to appear in *Trans. of the A.M.S.*
2. *Quasi-projectivity, Artin groups and pencil maps*, with E.Artal-Bartolo, J.I.Cogolludo-Agustin; [arXiv:1005.5225](https://arxiv.org/abs/1005.5225), to appear in *A.M.S. Contemp. Math.*

### Preprints Submitted:

1. *Characteristic varieties of quasi-projective manifolds and orbifolds*, with E.Artal-Bartolo, J.I.Cogolludo-Agustin; [arXiv:1005.4761](https://arxiv.org/abs/1005.4761).
2. *Hyperplane arrangements of Torelli type*, with D. Faenzi, J. Vallès; [arXiv:1011.4611](https://arxiv.org/abs/1011.4611).

### Preprints

1. *Arrangements of hypersurfaces and Bestvina-Brady groups*, with E.Artal-Bartolo, J.I.Cogolludo-Agustin; *Oberwolfach Reports*, 4:2347–2348, 2007.

### Papers in preparation

1. *Computing partition functions for multidimensional queueing networks using multivariate residues*, with F. Avram.
2. *Solvable representations of 3-manifold groups*, with V. Florens.

## Presentations

### Recent International Conferences (2011-2005):

*Characteristic varieties of quasiprojective manifolds and orbifolds*, Romanian Math Congress, Brasov, Romania; *AMS Meeting*, Worcester, MA; *Logarithmic sheaves and arrangements of hyperplanes*, Configuration Spaces, SNS Pisa, Italy; *Solvable representations of 3-manifold groups*, Workshop Pau-Zaragoza, Spain, *Plane curves and cohomology*, Non-Euclidean Geometry, Cluj, Romania; *Artin groups, algebraic curves and Alexander polynomials*, Braids in Pau, France; *Fundamental groups of smooth quasiprojective varieties*, Libgober fest, Jaca, Spain; *Moduli Spaces*, Sibiu, Romania; *Cohomology of complements to algebraic plane curves*, Topology of Stratified Spaces, MSRI; *Fundamental groups of smooth algebraic varieties*, Orlik fest, Fields Institute, Toronto; *Cohomology algebras of arrangements of plane curves*, AMS Meeting, LSU, Baton Rouge; *Arrangements of hypersurfaces and Bestvina-Brady groups*, Mini-Workshop, Oberwolfach; *Homology of fibertype arrangements and configuration spaces*, Yuzvinsky fest, MSRI; *Local system homology of pure braid groups*, Workshop, PIMS.

### Presentations in International Conferences and Seminars:

- *Canada*: Fields Institute, Toronto; Pacific Institute of Math. Sci., Vancouver.
- *Europe*: Scuola Normale Superiore Pisa, Italy; Univ. de Zaragoza, Spain; Univ. de Pau, France; Oberwolfach Math. Institute, Germany; Institute J. Fourier, Grenoble, France; University of Bucharest, Romania.
- *Japan*: Hokkaido University, Sapporo; Tokyo Metropolitan Univ.; Tohoku Univ., Sendai; University of Tokyo.
- *U.S.A.*: MSRI, Berkeley; Univ. of Massachusetts, Boston; Louisiana State Univ., Baton Rouge; Florida State Univ., Tallahassee; Univ. of N. Arizona., Flagstaff; Johns Hopkins Univ., Baltimore; George Washington Univ., Washington D.C.; Columbia Univ., New York; Univ. of Michigan, Ann Arbor; Univ. of Rochester, Rochester; Northeastern Univ., Boston.

## RESEARCH INTERESTS

### Pure Mathematics:

Algebraic geometry: Topology of algebraic varieties, singularities.

Algebraic topology: Homotopy theory, formal spaces, Massey products.

Geometric topology: Braids, configuration spaces, knots and links, 3-manifolds.

Group theory: Combinatorial group theory, geometric invariants of infinite groups.

### Applied Mathematics:

Algebraic and topological methods in: Biology, computer science, robotics and statistics.

Geometry and topology in mathematical physics: Conformal and topological field theory.

### Funded Research Projects in Progress

1. Algebraic methods in probability and statistics.
  - *Multidimensional queueing networks and multivariate residues.*
2. Topology of algebraic varieties.
  - *Topology of arrangements of algebraic hypersurfaces.*
3. Topology of knots, links and 3-manifolds.
  - *Homology of coverings, representation varieties and Alexander invariants.*

## TEACHING

**Undergraduate:** Single/Multi Variable Calculus, University of Rochester, 1999-2002.  
Calculus for Business, Calculus for Engineers, Northeastern University, 1993-1999.  
Differential Geometry of Curves and Surfaces, University of Bucharest, 1990-1991.

**Graduate:** *Topology of Manifolds*, SNSB, Bucharest, Spring 2011.  
*Introduction to algebraic topology*, SNSB, Bucharest, Fall 2009.  
*Topological combinatorics*, University of New Brunswick, Summer 2009.  
*Fiber bundles and characteristic classes*, SNSB, Bucharest, Fall 2008.  
*Introduction to Hodge theory*, SNSB, Bucharest, Spring 2008.  
*Topology of algebraic plane curves*, SNSB, Bucharest, 2007.  
*An introduction to knot theory via Khovanov homology*, University of Tokyo, 2006.  
*Reidemeister torsion in knot theory*, University of Tokyo, 2003.

**Minicourses and Lectures:** *Arrangements of hyperplanes*, Univ. of Pau, 2009-2010; *Artin groups, Bestvina-Brady groups and arrangements of hypersurfaces*, CIMPA Summer School, Istanbul, 2007; *Massey products of cell complexes*, Univ. of Zaragoza, 2006; *Topology of hyperplane arrangements*, Inst. J. Fourier, 2005; *Braid monodromy of plane curves*, Univ. of Tokyo, 2003.

## COMPUTER SKILLS

Proficiency in *Pascal, C, Unix, Mathematica, Macaulay, Gap, Singular*.

## PROFESSIONAL MEMBERSHIPS

1993-Present: Member of the American Mathematical Society.  
Since 2002: Reviewer *Math Reviews*. Since 2006: Reviewer *Zentralblatt Math*.

## FELLOWSHIPS, GRANTS, AWARDS

2011: Research Fellowship Grant of the Government of Aragon, Spain.  
2010: Research Project Laboratoire Européen Associé CNRS, France-Roumanie.  
2007-current: Research Grants of the National Research Council, Romania.  
2006: Research Fellowship Grant of the Ministry of Education and Science, Spain.

## FOREIGN LANGUAGES

Speaking, reading and writing in English & French.

## OTHER INTERESTS

Mathematics education, computational mathematics, financial mathematics, history of science.

## REFERENCES

Prof. Alexandru Dimca, Université de Nice, France, [dimca@math.unice.fr](mailto:dimca@math.unice.fr)

Prof. Louis Funar, Université de Grenoble, France, [funar@fourier.ujf-grenoble.fr](mailto:funar@fourier.ujf-grenoble.fr)

Prof. Stefan Papadima, Inst. of Math., Bucharest, Romania, [Stefan.Papadima@imar.ro](mailto:Stefan.Papadima@imar.ro)

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