Curriculum Vitae

D. Arinkin

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Academic positions:
- University of Wisconsin–Madison, Associate Professor, 9/13–present.
- University of Wisconsin–Madison, Assistant Professor, 8/12–8/13.
- Institute for Advanced Study, von Neumann Fellow, 9/11–4/12.
- University of North Carolina in Chapel Hill, Assistant Professor, 7/07–6/12.
- California Institute of Technology, S. R. Johnson Senior Research Fellow, 9/05–6/07.
- University of Chicago, L. E. Dickson Instructor, 9/02–8/05.

Education:
- Harvard University, 9/97–6/02: Ph.D. in Mathematics.

Advisors: V.Drinfeld , D.Kazhdan, Thesis: 'Fourier transform for quantized completely integrable systems'.
- Kharkov State University (Ukraine), 9/92–6/97: B.A. in Mathematics.

Awards:

2011 – NSF grant DMS-1101558 (as PI); grant extended until 2015.

2010 – von Neumann Fellowship (provides support for one-year IAS membership, deferred to 2011)

2008 – Sloan Research Fellowship (provides travel support and summer salary for two years)

1999 – Certificate of Distinction in Teaching from Harvard's Derek Bok Center

1998 – The Joseph Leonard Walsh Fellowship

1997 – "Red Diploma" (the highest honors in field) from Kharkov State University, Ukraine (major in math)

1992 – Gold Medal with perfect score at International Mathematics Olympiad

Participation in Grants:

2004 – DARPA grant HR0011-04-1-0031 (as postdoc; grant provided travel support and reduction of teaching load);

2004 – NSF grant DMS-0401164 (as postdoc; grant provided travel support and summer salary for two months);

2002 – NSF grant DMS-0100108 (as postdoc; grant provided travel support and summer salary for two months);

1994 – INTAS grant 94-4720 (as student; grant provided summer salary).

Graduate students supervised:

- Nathan Clement (University of Wisconsin, aiming for PhD in 2017)
- Edward Dewey (University of Wisconsin, aiming for PhD in 2016)
- Alexander Soibelman (University of North Carolina, PhD 2014)
- Adam Graham-Squire (University of North Carolina, PhD 2011)

Supervised as a second advisor (junior faculty who advises a student under the general direction of their first advisor):

- Joaquin Teruji Thomas (University of Chicago, PhD 2006)
- Maxim Leyenson (University of Chicago, PhD 2005)

Teaching experience:

Instructor:

University of Wisconsin:
- *Calculus - Functions of Several Variables* (2012, 2014, 2016)
- *The Theory of Single Variable Calculus* (2014)
- *Elementary Number Theory* (2013, 2014, 2015)
- *Introduction to Algebraic Geometry* (2012, 2015)
- *Algebraic Geometry II* (2015)
- *Homological Algebra* (2014)
- *Abelian varieties* (Topics Course) (2013)

University of North Carolina:
- *Multivariable Calculus* (2008)
- *Discrete Mathematics* (2009, 2011)
- *First Course in Differential Equations* (2010)
- *Introduction to Linear Algebra* (2010)
- *Commutative Algebra* (2008)
- *Lie Groups* (2010)
- *Geometric Class Field Theory* (Topics Course) (2007)
- *D-modules* (Topics Course) (2011)

California Institute of Technology:
- *Algebraic Geometry I and II* (3 quarters in 2005–2007)
- *Geometry of Ordinary Differential Equations* (Topics Course) (2006)

University of Chicago:
- *Analysis in $\mathbb{R}^n$* (4 quarters in 2003–2004)
- *Basic Algebra* (4 quarters in 2003–2005)

Harvard University:
- *Multivariable Calculus* (5 terms in 1998–2001)

Course assistant:

Harvard University/Harvard Summer School:
- *Introduction to Calculus* (2001,2002).
- *Algebraic Geometry* (1997,1999).

Reading courses:

- University of Wisconsin: three graduate reading courses each involving 2–3 students (2013–2015).
- University of North Carolina: four graduate reading courses and one undergraduate course (2008–2011)

Extracurricular educational activities

- Organizer of the Putnam Club for undergraduate students (University of Wisconsin, 2013–2015).
- Co-organizer of the First University of Wisconsin Undergraduate Math Competition (2015).
- Faculty contact for the Math Club for undergraduate students (University of Wisconsin, 2013).
- Co-organizer (with R. Rimanyi) of the problem-solving seminar for undergraduate students (University of North Carolina, 2007–2011).
- Co-organizer (with P. Belkale) of a reading course on algebraic geometry, attended by five graduate students (University of North Carolina, 2009).
- Lecturer for a mini-course on homological algebra (Summer School on Mathematical String Theory, Virginia Tech, 2010).

Conferences organized:
- *Towards the proof of the geometric Langlands conjecture*: a week-long conference at the Hebrew University of Jerusalem, 2014. (More than 100 participants.) The workshop consisted of fourteen closely coordinated talks, as well as tutorials and discussion sessions. I co-organized the conference, gave four of the talks, and lead several discussion sessions.
- *Homological methods in algebraic geometry*: a two-day conference at University of Wisconsin, 2014. (One of four co-organizers.)
- Faculty contact for Midwest Algebraic Geometry Graduate Conference at the University of Wisconsin, 2012.

Service:
- NSF panel member (2011).
- Reviewer of proposals for the NSA Mathematical Sciences Program (2010, 2012, 2014, 2015).
- Faculty contact for mathematics department newsletter (University of North Carolina, 2007–2010).

Service on committees (University of Wisconsin):
- University Senator (2013–2014)
- MathClub/Putnam committee (2012–2015)
- Algebra caucus contact (2015)
- Graduate advising committee (2014–2015)
- Algebra doctoral exam committee (2014–2015)
- Conferences/special lectures committee (2012–2015, Chair 2013–2015)
- Colloquium committee (2013–2014)
- Graduate program committee (2012–2014)

Referee for numerous journals, including Annals of Mathematics, Inventiones Mathematicae, Journal fr die reine und angewandte Mathematik (Crelle's Journal), Journal of the AMS, Proceedings of the AMS, Advances in Mathematics, Duke Mathematical Journal, Compositio Mathematica, Journal of Algebraic Geometry, Transactions of the AMS, International Mathematics Research Notices, Mathematical Research Letters, Journal of Physics A: Mathematical and Theoretical, Bulletin de la Société Mathématique de France, Transformation Groups, and others.

Selected invited talks at conferences and colloquia:

• A two-talk series on recent advances in the *Geometric Langlands conjecture.* Workshop on Geometric Representation Theory, Simons Center for Geometry and Physics, Stony Brook University (2016).

• *Geometry of ODE's with a small parameter.* Colloquium at University of Maryland (2015).

• *Ind-coherent sheaves, relative D-modules, and the Langlands conjecture.* Workshop "Derived structures in geometry and representation theory", Mathematical Institute, University of Oxford (2015).

• *Moduli of regular connections on the punctured disk.* American Mathematical Society Summer Research Institute on Algebraic Geometry at the University of Utah (2015).

• *Smooth categorical representations of reductive groups.* Camp-style seminar "Representation theory and related topics", part of the Research Institute for Mathematical Sciences project on Geometric Representation Theory, Irako, Japan (2015).

• A three-talk series on the *Geometric Langlands correspondence.* Introductory workshop on Geometric Representation Theory, Mathematical Sciences Research Institute, Berkeley (2014).

• *Towards the proof of the geometric Langlands conjecture.* Conference "Representation theory, integrable systems, and quantum fields", Northwestern University (2014).

• A two-talk series on *Moduli of connections and the Hitchin fibration in the geometric Langlands program.* Workshop "Moduli theory in algebraic geometry and integrable systems", Research Institute for Mathematical Sciences, Kyoto (2013).

• *Singular support of coherent sheaves.* Texas Algebraic Geometry Symposium (TAGS), University of Texas, Austin (2013).

• *Autoduality for compactified Jacobians.* Mathematics Department Colloquium at Northwestern University (2013).

• *Singular support of coherent sheaves.* Algebraic Geometry - Northeastern Series (AGNES), Brown (2012).

• Minicourse on *Singular support of coherent sheaves.* Spring School on Algebraic Microlocal Analysis, Northwestern University (2012).

• Minicourse on *Autoduality for compactified Jacobians.* University of Oxford (2011).

• *Towards categorical Langlands correspondence.* Miniprogram on Langlands-type dualities in quantum field theory at Kavli Institute for Theoretical Physics, University of California – Santa Barbara (2010).

• *Geometric approach to discrete isomonodromy transformations.* Eighth conference on symmetries and integrability of difference equations (SIDE 8) at Centre de Recherches Mathématiques in Montreal (2008).

- *On quasiclassical limit of Langlands correspondence.* Miniprogram on gauge theory and Langlands duality at Kavli Institute for Theoretical Physics, University of California – Santa Barbara (2008).

- *Centralizers in Langlands dual groups over formal Taylor series.* Special session on Number Theory in the Southwest, American Mathematical Society Spring Western Section Meeting (2007).

- *Rigid differential equations.* Western Algebraic Geometry Seminar (WAGS), Colorado State University (2007).

- *Connections with a small parameter and spectral curves.* Mathematics Department Colloquium, University of California, Berkeley (2005).

- *Liouville Theorem for quantized completely integrable systems.* American Mathematical Society Summer Institute on Algebraic Geometry, University of Washington (2005).

- *Connections with a small parameter on a curve.* Special Seminar, Institute for Advanced Study (2004).

- *Families of non-commutative Lagrangian tori over a commutative base.* Conference "Geometry and topology of string theory", Northwestern University (2004).

- *Fourier transform for quantized completely integrable systems.* Workshop "Geometric aspects of the Langlands program", Mathematical Science Research Institute, Berkeley (2002).

- **Seminar talks** at Massachusetts Institute of Technology (2009), joint Harvard/MIT seminar (2010, 2011), Princeton University (2006, 2012), Oxford University (2011), Northwestern University (2001), University of Pennsylvania (2002, 2006, 2009), University of Massachusetts in Amherst (2007, 2012), Stony Brook University (2011), University of Michigan (2014), University of Illinois in Urbana-Champaign (2011), University of Illinois in Chicago (2013), University of California in Irvine (2007), University of Notre Dame (2005), Boston University (2001, 2008), Kansas State University (2011, 2013), Northeastern University (2011), and others.

  Seminar talks at the University of Chicago, California Institute of Technology, University of North Carolina at Chapel Hill, and University of Wisconsin are not included.

Research publications:

- *Singular support of coherent sheaves and the geometric Langlands conjecture* (with D. Gaitsgory). Selecta Math., 21 (2015), no. 1, 1–199.

- *⋆-Quantizations of Fourier-Mukai transforms* (with J. Block and T. Pantev). Geometric and Functional Analysis, 23 (2013), no. 5, 1403–1482.

- *Autoduality of compactified Jacobians for curves with plane singularities.* J. Algebraic Geom., 22 (2013), 363–388.

- *Intersection cohomology of a rank one local system on the complement of a hyperplane-like divisor* (with A. Varchenko). In "Configuration Spaces, Geometry, Combinatorics and Topology" edited by A. Bjorner, F. Cohen, C. De Concini, C. Procesi, and M. Salvetti, 2012, 49–53.

- *When is the self-intersection of a subvariety a fibration?* (with A. Căldăraru). Advances in Math., 231 (2012), no. 2, 815–842.

- *An example of Lanlgands correspondence for irregular rank two connections on* $\mathbb{P}^1$ (with R. Fedorov). Advances in Math., 230 (2012), no. 3, 1078–1123.

- *Cohomology of line bundles on compactified Jacobians.* Math. Res. Lett. 18 (2011), no. 6, 1215–1226.

- *Rigid irregular connections on* $\mathbb{P}^1$. Compositio Math., 146 (2010), 1323–1338.

- *Perverse coherent sheaves* (with R. Bezrukavnikov). Moscow Math. J. 10 (2010), no.1, 3–29.

- *Tau-function of discrete isomonodromy transformations and probability* (with A. Borodin). Compositio Math. 145 (2009) 747–772.

- *Moduli spaces of d-connections and difference Painlevé equations* (with A. Borodin). Duke Math. J. 134 (2006), no. 3, 515–556.

- *On λ-connections on a curve where λ is a formal parameter.* Math. Res. Lett. 12 (2005), no. 4, 551–565.

- Appendix to *Torus fibrations, gerbes, and duality* by R. Donagi and T. Pantev. Mem. Amer. Math. Soc. 193 (2008), no. 901.

- *Orthogonality of natural sheaves on moduli stacks of* SL(2)-*bundles with connections on* $\mathbb{P}^1$ *minus 4 points.* Selecta Math. 7 (2001), 213–239.

- *Fukaya category and Fourier transform* (with A. Polishchuk). Winter School on Mirror Symmetry, Vector Bundles and Lagrangian Submanifolds (Cambridge, MA, 1999), 261–274.

- *On the moduli of* SL(2)-*bundles with connections on* $\mathbb{P}^1 \setminus \{x_1, \cdots, x_4\}$ (with S. Lysenko). Internat. Math. Res. Notices, 19 (1997), 983–999.

- *Isomorphisms between moduli spaces of* SL(2)-*bundles with connections on* $\mathbb{P}^1 \setminus \{x_1, \cdots, x_4\}$ (with S. Lysenko). Math. Res. Lett. 4 (1997), no. 2-3, 181–190.

- *Invertible sheaves on the moduli variety of* SL(2)-*bundles with a connection on* $\mathbb{P}^1$ (with S. Lysenko) (Russian). Dopov. Nats. Akad. Nauk Ukr. Mat. Prirodozn. Tekh. Nauki, 6 (1997), 7–11.

Preprints:

- *Irreducible connections admit generic oper structures.* Electronic preprint arXiv:1602.08989, 18pp.

- *Formality of derived intersections and the orbifold HKR isomorphism* (with A. Căldăraru, M. Hablicsek). Electronic preprint arXiv:1412.5233, 23 pp. Submitted.

- *The category of singularities as a crystal and global Springer fibers* (with D. Gaitsgory). Electronic preprint arXiv:1412.4394, 80 pp. Submitted.

- *Partial Fourier-Mukai transform for integrable systems with applications to Hitchin fibration* (with R. Fedorov). Electronic preprint arXiv:1408.0984, 36 pp. Accepted for publication, Duke Math. J.

- *Derived intersections and the Hodge theorem* (with A. Căldăraru, M. Hablicsek). Electronic preprint arXiv:1311.2629, 36 pp. Submitted.

- *Moduli of connections with a small parameter on a curve.* Electronic preprint arXiv:math/0409373, 19 pp.

- *Fourier transform and middle convolution for irregular D-modules.* Electronic preprint arXiv:0808.0699, 29 pp.