

CONTACT INFORMATION	Department of Mathematics KTH Royal Institute of Technology Lindstedsvägen 25 SE-100 44 Stockholm Sweden	<i>Voice:</i> +46 8 790 7179 <i>Fax:</i> +46 8 723 1788 <i>E-mail:</i> dary@math.kth.se <i>Web:</i> www.math.kth.se/~dary/
INTERESTS	Algebraic geometry: moduli problems, algebraic stacks and spaces, derived and triangulated categories, monoidal categories, wild ramification, deformation theory, resolution of singularities, log geometry, non-archimedean geometry, derived algebraic geometry, birational geometry, coherent functors, families of cycles.	
CURRENT POSITION	<b>KTH Royal Institute of Technology, Stockholm</b> Professor, Sep 2019–.	
PREVIOUS POSITIONS	<b>KTH, Stockholm</b> Associate professor, Jan 2015–Aug 2019 (Docent since March 2015). <b>KTH, Stockholm</b> Assistant professor (tenure-track), Feb 2011–Dec 2014 <b>KTH, Stockholm</b> Assistant professor (non-tenure track), Aug 2010–Jan 2011 <b>University of California, Berkeley</b> Postdoctoral scholar, 2009–2010	
EDUCATION	<b>KTH Royal Institute of Technology</b> , PhD, 2008 Thesis title: <i>Families of cycles and the Chow scheme</i> Thesis advisor: Dan Laksov  <b>KTH Royal Institute of Technology</b> M.S., 2003 Thesis title: <i>Chow varieties</i> Thesis advisor: Dan Laksov	
GRANTS, HONORS AND AWARDS	Göran Gustafsson's big prize to young researchers, 2017 Knut and Alice Wallenberg foundation, post-doc grant, 2017 Swedish research council, 4 year research grant, 2016–2019 Wallenberg prize in mathematics, 2015 Swedish research council, 4 year research grant, 2012–2015 Göran Gustafsson's small prize to young researchers, 2011 Swedish research council, two-year postdoctoral fellowship, 2009–2010 Travel grants (AMS, NORDAG, Styffe, Wallenberg), 2004–2008 Wallquist's medal, for best undergraduate study results at KTH, 2004 Honorary grant, for undergraduate program, 2004 PhD "excellence" fellowship at KTH, 2003 Bronze medals at the 38 <sup>th</sup> , 39 <sup>th</sup> and 40 <sup>th</sup> Internat. Mathematical Olympiads, 1997–1999 1 <sup>st</sup> place in the Swedish physics competition, 1999	
PUBLICATIONS	[HR1] (with J. Hall) <i>Coherent Tannaka duality and algebraicity of Hom-stacks</i> , Algebra Number Theory <b>13</b> (7) (2019), 1633–1675.  [HNR2] (with J. Hall and A. Neeman) <i>One positive and two negative results for derived categories of algebraic stacks</i> , J. Inst. Math. Jussieu <b>18</b> (5) (2019), 1087–1111.	

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- [HR3] (with J. Hall) *Artin's criteria for algebraicity revisited*, Algebra Number Theory **13**(4) (2019), 749–796.
  - [RRZ4] (with M. Romagny and G. Zalamansky) *The complexity of a flat groupoid*, Doc. Math. **23** (2018), 1157–1196.
  - [HR5] (with J. Hall) *Addendum: Étale dévissage, descent and pushouts of stacks*, J. Algebra **498** (2018), 398–412.
  - [HR6] (with J. Hall) *Perfect complexes on algebraic stacks*, Compos. Math. **153**(11) (2017), 2318–2367.
  - [HR7] (with J. Hall) *The telescope conjecture for algebraic stacks*, J. Topol **10**(3) (2017), 776–794.
  - [R8] *Approximation of sheaves on algebraic stacks*, Int. Math. Res. Not. IMRN **2016**(3) (2016), 717–737.
  - [HR9] (with J. Hall) *Algebraic groups and compact generation of their derived categories of representations*, Indiana Univ. Math. J. **64**(6) (2015), 1903–1923.
  - [HR10] (with J. Hall) *General Hilbert stacks and Quot schemes*, Michigan Math. J. **64** (2015), 335–347.
  - [R11] *Noetherian approximation of algebraic spaces and stacks*, J. Algebra **422** (2015), 105–147.
  - [HR12] (with J. Hall) *The Hilbert stack*. Adv. Math. **253** (2014), 194–233.
  - [R13] *Existence and properties of geometric quotients*, J. Algebraic Geom. **22** (2013), 629–669.
  - [R14] *Étale dévissage, descent and pushouts of stacks*. J. Algebra **311**(1) (2011), 194–223.
  - [R15] *The canonical embedding of an unramified morphism in an étale morphism*. Math. Z. **268**(3–4) (2011), 707–723.
  - [R16] *Representability of Hilbert schemes and Hilbert stacks of points*. Comm. Alg. **39**(7) (2011), 2632–2646.
  - [RS17] (with R. Skjelnes) *An intrinsic construction of the principal component of the Hilbert scheme*. J. London Math. Soc. **82**(2) (2010), 459–481.
  - [R18] *Submersions and effective descent of étale morphisms*. Bull. Soc. Math. France **138** (2010), no. 2, 211–260.
  - [R19] *A minimal set of generators for the ring of multisymmetric functions*. Ann. Inst. Fourier **57** (2007), no. 6, 1741–1769.
  - [R20] *Families of cycles and the Chow scheme*, Thesis, May 2008, pp. 218. Consists of the four papers [R20a, R20b, R20c, R20d].
  - [R20a] *Families of zero-cycles and divided powers: I. Representability*, Mar 2008, pp. 54, arXiv:0803.0618. Part of thesis.
  - [R20b] *Families of zero-cycles and divided powers: II. The universal family*, May 2008, pp. 28. Part of thesis.
  - [R20c] *Hilbert and Chow schemes of points, symmetric products and divided powers*, May 2008, pp. 39. Part of thesis.
  - [R20d] *Families of cycles*, May 2008, pp. 74. Part of thesis.
  - [R21] *Tame and wild ramification via stacks*, Oberwolfach report 38/2012, 2342–2344.

THESIS AND  
NON-REFEREED

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- SUBMITTED [AHR22] (with J. Alper and J. Hall) *A Luna étale slice theorem for algebraic stacks*, Apr 2015, pp. 31, arXiv:1504.06467.
- [HR23] (with J. Hall) *Mayer–Vietoris squares in algebraic geometry*, Jun 2016, pp. 26, arXiv:1606.08517.
- [ER24] (with D. Edidin) *Canonical reduction of stabilizers for Artin stacks with good moduli spaces*, Oct 2018, pp. 36, arXiv:1710.03220.
- [BR25] (with D. Bergh) *Functorial destackification and weak factorization of orbifolds* May 2019, pp. 37, arXiv:1905.00872.
- [KR26] (with A. Khan) *Virtual Cartier divisors and blow-ups* May 2019, pp. 19, arXiv:1802.05702v2.
- PREPRINTS [R27] *Compactification of tame Deligne–Mumford stacks*, Preprint, May 2011, pp. 57.
- [R28] *Compactification of stacks and extending stackiness across the boundary*, Preprint, Sep 2014, pp. 14.
- [HR29] (with J. Hall) *Tannaka duality for algebraic stacks with quasi-affine diagonal* Preprint, May 2014, pp. 9.
- [AHR30] (with J. Alper and J. Hall) *The étale local structure of algebraic stacks* Preprint, Sep 2019, pp. 54.
- IN PREPARATION [R31] *A generalization of Luna’s fundamental lemma for stacks with good moduli spaces*, Draft, Oct 2015, pp. 16.
- [R32] *Submersions and effective descent of étale morphisms II*, Draft, Mar 2016, pp. 17.
- [R33] *Functorial flatification of proper morphisms*, In preparation, Nov 2015, pp. 7.
- [R34] *Equivariant flatification, étalification and compactification*, In preparation, Oct 2016, pp. 8.
- [R35] *Weak factorization of Deligne–Mumford stacks*, In preparation, Oct 2015.
- [R36] *Generalized Bertini theorems and finite coverings of arithmetic stacks*, In preparation, Sep 2015, pp. 5.
- [HR37] (with J. Hall) *Coherence of half-exact functors*, In preparation, Jun 2012, pp. 18.
- [R38] *Functorial resolution of singularities in characteristic zero using Rees algebras*, Draft, Apr 2013, pp. 28.
- SUPERVISION PhD student **Jeroen Hekking**, KTH, Aug 2017 and onwards.
- PhD student **Eric Ahlqvist**, KTH, Aug 2016 and onwards.
- PhD student **Gustav Sædén Ståhl**, KTH, 2012–2016. PhD in Dec 2016. Thesis title “Hilbert schemes and Rees algebras”.
- PhD student **Daniel Bergh**, Stockholm University, took over supervision from Torsten Ekedahl (deceased) starting from Jan 2012. PhD in Oct 2014. Thesis title “Destackification and Motivic Classes of Stacks”.
- Assistant supervisor for PhD student **Jack Hall**, Stanford University, during Fall 2009–Spring 2010. PhD in May 2011 (main supervisor Ravi Vakil). Thesis title “General existence theorems in moduli theory”.

Assistant supervisor for PhD student **Katharina Heinrich**, KTH, Jan 2012–April 2014. Graduation date: April 2014 (main supervisor Roy Skjelnes). Thesis title “The space of Cohen–Macaulay curves and related topics”.

Assistant supervisor for PhD student **Magnus Carlsson**, KTH, Aug 2013–June 2018. Main supervisor Tilman Bauer. Thesis title “Abelian affine group schemes, plethories, and arithmetic topology”.

Advisor for 3 master theses and 1 bachelor thesis.

Postdoc mentor for **Roberto Pirisi**, KTH, 2018–2020.

Postdoc mentor for **Jack Hall**, KTH, 2011–2013.

## ORGANIZATION

**Mittag-Leffler** “Moduli and algebraic cycles”, Semester program Fall 2021.

**Stavanger** “Sheaves, curves, and moduli”, Apr 2018.

**Stockholm** “ $\mathbb{N}^3$ -days VII”, Oct 2017.

**Mittag-Leffler** “Non-Archimedean Geometry, Motives and Vanishing Cycles”, Jun 2017.

**Mittag-Leffler** “Two approaches towards local uniformization and resolution of singularities in characteristic  $p > 0$ ”, May 2016.

INVITED  
CONFERENCE  
LECTURES

**School on motives and stacks**, Essen, Sep 2019 (lecture series)

**Triangulated Categories and Applications**, Banff, June 2016

**Equivariant geometry and algebraic stacks**, ANU Kioloa Campus, Mar 2016

**AMS Summer institute in Algebraic Geometry**, Utah, July 2015 (contributed talk)

**BNL–NoGAGS**, Nijmegen, June 2015

**Artin Approximation**, Luminy, Mar 2015

**AriVaF Closing conference**, Bordeaux, Nov 2014

**Algebraic Geometry days at the Mittag-Leffler Institute**, a conference dedicated to the memory of **Dan Laksov**, Stockholm, June 2014

**Facets of Geometry**, a tribute to **Torsten Ekedahl** and **Mikael Passare**, Stockholm, June 2013

**Arithmetic Geometry**, Oberwolfach conference, August 2012

**Algebraic stacks: Progress and prospects** Banff, March 2012 [could not participate due to illness]

**Moduli spaces and moduli stacks** New York City (Columbia), May 2011

**Joint meeting SMS–CMS** Barcelona, Sep 2010

**British–Nordic Congress** Oslo, June 2009

**Western Algebraic Geometry Seminar** Berkeley, April 2009

**Mittag-Leffler Institute** “Moduli spaces”, Stockholm, June 2007

**Scandinavian mini-conference** “Algebra and geometry”, Stockholm, June 2006

**KTH** “Algebraic geometry”, Stockholm, December 2004

OTHER  
CONFERENCES  
ATTENDED

**Mittag-Leffler** workshop “Algebro-Geometric and Homotopical Methods”, May 2019  
**MSRI** Workshop “Derived algebraic geometry and its applications”, Mar 2019  
**Mittag-Leffler** “ $\mathbb{N}^3$ -days VIII”, Jun 2018  
**Pisa** “A Tale of Algebra and Geometry”, Jun 2018  
**Gothenburg** “Moduli of curves”, Oct 2017  
**Copenhagen** “ $\mathbb{N}^3$ -days VI”, Jun 2017  
**Mittag-Leffler** workshop “Algebro-Geometric and Homotopical Methods”, March 2017  
**Mittag-Leffler** program “Algebro-Geometric and Homotopical Methods”, Spring 2017  
**Gothenburg** “ $\mathbb{N}^3$ -days V”, Nov 2016  
**Amsterdam** “Conference on Algebraic Geometry”, Jun 2013  
**Lorentz Center, Leiden** “Trends in Arithmetic Geometry”, Jan 2013  
**Oberwolfach** “Classical Algebraic Geometry”, June 2012  
**Paris**, Summer school “Berkovich spaces”, June 2010  
**Bordeaux**, Log geometry, June 2010  
**MSRI** Workshop “Introductory Workshop: Tropical Geometry”, Aug 2009  
**MSRI** Workshop “Algebraic Geometry: Last Week of Program”, May 2009  
**MSRI** Workshop “Combinatorial, Enumerative and Toric Geometry”, Mar 2009  
**MSRI** Workshop “Modern Moduli Theory”, Feb 2009  
**MSRI** Workshop “Classical Algebraic Geometry Today”, Jan 2009  
**MSRI** Workshop “Connections for Women: Algebraic Geometry and Related Fields”, Jan 2009  
**MSRI** Research program “Algebraic geometry”, Jan–May 2009  
**Lorentz Center, Leiden** ECM satellite conference, July 2008  
**Scuola Normale Superiore, Pisa** Summer school “Aspects of Moduli”, June 2008  
**Mittag-Leffler institute** Research program “Moduli spaces”, Sep 2006–June 2007  
**Oberwolfach** Seminar week on “Algebraic stacks”, Oct 2006  
**University of Washington** AMS summer research institute “Algebraic geometry”, August 2005  
**KTH** Conference in honor of Dan Laksov, May 2005  
**Lorentz Center, Leiden** EAGER conference “Algebraic cycles and motives”, September 2004  
**Nordfjordeid** Summer school “Modular forms and their applications”, August 2004  
**University of Aarhus** NORDAG conference “Algebraic geometry and algebraic groups”, June 2004  
**University of Gothenburg** NORDAG workshop “Algebraic geometry”, October 2002

## TEACHING

**KTH Royal Institute of Technology**

Lecturer/course coordinator in:

- Calculus of one variable, Fall 2019
- Algebra and geometry (linear algebra), Fall 2019
- Groups and rings, Spring 2019
- Algebra and geometry (linear algebra), Fall 2018
- Mathematical and Numerical Analysis (calculus), Fall 2018
- Groups and rings, Spring 2018
- Calculus of one variable, Fall 2017
- Mathematical and Numerical Analysis (calculus), Fall 2017
- Algebraic stacks (PhD course), Spring 2017
- Commutative algebra and algebraic geometry (master course), Fall 2016
- Mathematical and Numerical Analysis (calculus), Fall 2016
- Étale cohomology (PhD course), Spring 2016
- Mathematical and Numerical Analysis (calculus), Fall 2015
- Intersection theory (PhD course), Spring 2015
- Algebra and Geometry through Projective Geometry (master course), Spring 2015
- Commutative algebra and algebraic geometry (master course), Fall 2014
- Linear algebra for high-school students, Fall 2014–Spring 2015
- Calculus of one variable, Fall 2013
- Algebraic Geometry III (PhD course), Fall 2012
- Calculus of one variable, Fall 2012
- Calculus of one variable, Fall 2011

Assistant examiner (Calculus of one variable), Fall 2011 (9 course rounds).

Teaching assistant for the following courses:

- Preparatory course in mathematics, Fall 2008, Fall 2010
- Calculus of one variable, Fall 2007 (twice), Fall 2008, Fall 2010 (twice)
- Calculus of multiple variables, Spring 2003
- Linear algebra, Fall 2007, Fall 2008, Fall 2010
- Discrete mathematics, Spring 2003, Spring 2007
- Differential equations and transforms, Spring 2003

During the academic years 2011–2012 and 2012–2013 I also **built and administred a database** that manages registrations and results for the three basic courses Linear algebra, Calculus in one variable and Calculus in several variables, that are each followed by 1500 students per year.

**Chalmers University of Technology**

Lecturer in “History of algebra”, Summer 2004 (60 hours of lectures and tutorials). Also teaching assistant for the following courses:

- Discrete Mathematics, Fall 2003, Fall 2004, Spring 2005
- Linear Algebra, Fall 2003, Spring 2005, Spring 2006
- Calculus of one variable, Spring 2004
- Calculus of multiple variables, Spring 2004

## CITIZENSHIP

Sweden