

# Sandra Di Rocco

## Curriculum Vitae

KTH, Mathematics  
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### Current academic positions

- 2020–2027 **Dean**, KTH, School of Engineering Sciences, Stockholm
- 2010–present **Full professor**, KTH, department of Mathematics, Stockholm

### Previous academic positions

- 2012–2019 **Department chair**, KTH, department of Mathematics, Stockholm
- 2003–2009 **Associate professor**, KTH, Stockholm, Sweden
- 2002–2003 **Visiting Assistant professor**, University of Minneapolis, Minnesota, USA
- 2002–2001 **Research Associate**, KTH, Stockholm, Sweden
- 2000–2001 **Visiting Assistant professor**, Yale U., USA
- 1998–1999 **Post-doc**, Max Planck Institute, Bonn, Germany
- 1997–1998 **Post-doc**, Mittag-Leffler Institute, Stockholm, Sweden

### Academic qualification

- 2015 **Docent**, KTH, department of Mathematics, Stockholm
- 1996 **Ph.D in Mathematics**, Notre Dame University, department of Mathematics, USA
- 1993 **M.S. in Mathematics**, Notre Dame University, department of Mathematics, USA
- 1992 **Laurea in Mathematics**, Universita' de L'Aquila, summa cum laude, Italy

### Education in managing and leadership

- 2023 **Leadership course for experience leaders.**
- 2011–2012 **Novare Academy**, Management program, one year long course for leaders from several sectors, modules: Leadership. Business and finance. Innovation and growth. Changes. Life and career
- 2012 **KTH**, Financing for non economists, Stockholm, Sweden
- 2012 **KTH**, Leadership course II, Stockholm, Sweden
- 2010 **KTH-Volvo**, Program in gender equality, Stockholm, Sweden
- 2009 **KTH**, Leadership course I, Stockholm, Sweden

### Current service appointments

- 2024–2029 **MPI-CBG**, Max Planck Institute of Molecular Cell Biology and Genetics, member of the Scientific Advisory Board

- 2024-2029 **MPI-MiS**, *Max Planck Institute of Mathematics in the Sciences* , member of the Scientific Advisory Board
- 2023-2025 **ESI**, *Erwin Schrödinger International Institute for Mathematics and Physics* , chair of the Scientific Advisory Board
- 2018-2027 **KAW, Wallenberg Foundation**, *Autonomous Systems and Software Program*, Section: Mathematics for A.I., Steering board
- 2021- **Lie-Storme Center**, *UIT*, Scientific Advisory Board, Norway
- 2022- **IVA**, *Royal Academy of Engineering Sciences*, member elected
- 2022- **Digital Futures**, *KTH*, Board
- 2022- **Nordita**, *KTH*, Board
- 2013- **Göran Gustafsson Foundation KTH/UU**, *managing board member*
- 2018- **Polytechnic Torino**, *SmartData Center*, Scientific board, Italy

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### Most relevant past service appointments

- 2020-2023 **ESI**, *Erwin Schrödinger Institute for Physics and Mathematics*, Scientific Board member, Austria
- 2019-2022 **ICM 2022**, *International Congress of Mathematics*, Chair, International Advisory Board
- 2019-2021 **SIAM, Society for Industrial and Applied Mathematics**, *Chair*, Activity Group Algebraic Geometry, USA
- 2019 **VR, Swedish National Science Foundation**, *Natural and Engineering Sciences*, Steering board
- 2017-2019 **EMS**, *Solidarity Grants committee*, Chair
- 2017-2019 **KTH**, *MathDataLab*, Managing board
- 2015-2019 **Royal Swedish Academy of Sciences**, *National Committee for Mathematics*, Chair
- 2017-2019 **Polytechnic Torino**, *Foreign member of the graduate school*
- 2010-2019 **Stockholm Mathematics Centrum**, *managing board member*
- 2013-2015 **ISP (International Science Program)**, *managing board member*
- 2010-2015 **KTH**, *member of the faculty board*
- 2008-2010 **KTH**, *Head of division*

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### Distinctions

- 2021 **Royal Academy of Engineering Sciences**, *Elected member*, IVA
- 2021 **Borelius Medal**, *Engineering Sciences*, KTH

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### Research positions and long term visiting appointments

- 2018 **Program professor**, *ICERM*, Brown, Providence, USA
- 2017 **Program professor**, *Fields Institute*, Toronto, Canada
- 2016 **Program professor**, *IMPA*, Rio, Brasil
- 2011 **Program director**, *Mittag-Leffler Institute*, Stockholm, Sweden

- 2009 **Program researcher**, *MSRI*, Berkeley, USA
- 2006 **Program researcher**, *IMA center for applied mathematics*, Minneapolis, USA
- 2001 **Visiting researcher**, *3 months*, U. of Canberra, Canberra  
Australia

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### Selected Individual Grants 2009-2024

- 2023-2026 **Swedish National Science Foundation**, *VR*, 3.800.000 SEK
- 2022-2024 **Postdoc position**, *KAW*, 2.200.000 SEK
- 2020-2021 **Postdoc position**, *KAW/Verg Foundation*, 2.200.000 SEK
- 2020-2021 **ERC, Marie-Curie Postdoc**, *European research Council*, K. Kohn
- 2019-2023 **Swedish National Science Foundation**, [*NT:2018-03688*], Polar Geometry and variety sampling, 3.375.000 SEK
- 2018 **ICERM semester program**, *Non linear Algebra*, Co-organizer fall semester
- 2017 **KAW guest-professorship for A. Dickenstein**
- 2015-2018 **Swedish National Science Foundation**, [*NT:2014-4763*], Equivariant and Numerical Methods in Algebraic Geometry, 2.200.000 SEK
- 2011-2014 **Swedish National Science Foundation**, [*NT:2010-5563*], Toric geometry and applications, 2.200.000 SEK
- 2009-2014 **Göran Gustafsson Foundations**, *Research group grant*
- 2011 **Institute Mittag-Leffler**, *Spring 2011*, Special semester, Algebraic Geometry
- 2011 **Staring grant professorship**, *KTH*, 1.200.000 SEK
- 2010 **ESF-EMS-ERCOM-008**, *MEGA-conference*
- 2010 **Presidential grant**, *KTH*, *Algebraic Geometry*, Research activities
- 2007-2010 **Swedish National Foundation**, [*NT:2006-3539*], Algebraic Geometry and its applications, 2.000.000 SEK

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### Editorial work

- 2021- **editor**, *Rendiconti Mat. Trieste*, Open Access
- 2014 **co-editor**, *Combinatorial Algebraic Geometry*, Lecture Notes in Mathematics 2108, Springer
- 2014 **co-editor**, *Computational Algebraic Geometry*, Special issue, Mathematics in Computer Science
- 2012 **co-editor**, *Effective Methods in Algebraic Geometry*, Special issue, Journal of Symbolic computations.
- 2008 **co-editor**, *Interactions of Classical and Numerical Algebraic Geometry*, 496, Contemporary Mathematics

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### Experience as mentor for leaders

- 2020-2022 **Skandia**, *Amazing Leaders Program*
- 2019-2020 **SSF**, *Future Research Leaders*

- 2018 **KTH**, *PIL program*
- 2016-2017 **SSF**, *Future Research Leaders*

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## Educational activities

Vast experience in developing and being responsible for courses in Mathematics at bachelor, master and Ph.D level, including public lectures.

- 2010-2011 **KTH**, *Bachelor*, Inspirational lecture on Mathematics, Teknik Fysik
- 2010 **SU**, *high school*, Inspirational lecture on Mathematics, Sonia Kovalevski Dagar
- 2017 **Mittag-Leffler**, *high school teachers*, Inspirational lecture on Mathematics, Klein dagarna
  
- 2003-2019 **KTH**, *Bachelor*, Linear Algebra, Calculus, Discrete Mathematics
- 2003-2019 **KTH**, *Master*, Matrix Algebra, Toric Geometry, Introduction to Algebra, Introduction to Algebraic Geometry
- 2003-2019 **KTH**, *Ph.D*, Toric Geometry, topics in applied Algebraic Geometry
- 2019 **ICTP, Trieste**, *Ph.D*, Graduate course in Geometry of Data
- 2016 **CIRM Trento**, *Ph.D*, Graduate course in Toric Linear Fibrations
- 2002 **U. of Minnesota**, *Bachelor*, Calculus
- 2000-2001 **Yale Univ.**, *Bachelor*, Calculus
- 2000-2001 **Yale Univ.**, *Ph.D*, Algebraic Geometry

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## Advising

Ph.D students

- 2024-2029 **Giacomo Maletto** , *KTH*, main advisor supported by VR grant
- 2020 **Jiayue Qi**, *KTH*, Guest student, Austria
- 2019-2023 **Lukas Gustafsson** , *KTH*, main advisor supported by [NT:2018-03688]
- 2016-2021 **Oliver Gäfvert** , *KTH*, main advisor, Ph.D 2021 supported by [NT:2014-4763]
- 2015-2020 **Nasrin Altafi** , *KTH*, co-advisor
- 2010-2015 **Anders Lundman**, *KTH*, Licentiat 2013, Ph.D 2015 supported by [NT:2010-5563]
- 2009-2013 **Christine Jost**, *SU*, Licentiat 2010, Ph.D 2013
- 2006-2010 **David Eklund**, *KTH*, Licentiat 2008, Ph.D 2010 supported by [NT:2006-3539]
- 2010-2015 **Ornella Greco**, *KTH*, co-advisor
- 2008-2012 **Johanna Nilsson**, *KTH*, co-advisor
- 2011-2015 **Martina Scolamiero**, *KTH*, co-advisor

## Postdocs/Researchers

- 2024-2025 **Kemal Rose**, *KAW*
- 2022-2024 **Luca Sdomaco**, *MathDataLab KTH*
- 2020-2022 **Luca Schaffler**, *KTH*
- 2020-2022 **Orlando Marigliano**, *MathDataLab KTH*
- 2019-2022 **Isak Heden**, *KAW-KTH*
- 2017-2018 **David Eklund**, *KTH*
- 2016-2017 **Alessandro De Stefani**, *KTH*
- 2015-2016 **Ralph Morrison**, *KTH*
- 2009-2011 **Kelly Jabbusch**, *KTH*
- 2011 **Weronika Buczynska, Jonathan Hauenstein, Piotr Zwiernik, Jo-han Björklund, Maria Angelica Cueto, Christine Berkesch, Thomas Kahle, Luca Moci, Dustin Cartwright**, *Mittag-Leffler*

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## Selected Evaluation Service

- 2024 **Uppsala University**, *Research evaluation*, Expert, Sweden
- 2024 **INRIA**, Expert, France
- 2023 **IU. Nice**, *Ass. Professort*, Expert, France
- 2023 **ANVUR**, *National Quality assessment*, Expert, Italy
- 2023 **Institute Oberwolfach**, *Assessment*, Expert, Germany
- 2023 **UCD**, *Research Assessment*, Expert, Dublin
- 2022 **Poland**, *Excellence program in Mathematics*, Expert
- 2022 **U. of Copenhagen**, *Full professor appointment*, Expert
- 2022 **Trömsö**, *Faculty position*, Expert
- 2021 **EPFL**, *University Accreditation Evaluation*, Chair of committee
- 2021 **U. Cambridge**, *Full Professorship*, External Referee (Elector)
- 2021 **TU Berlin**, *Professorship*, External Referee
- 2021 **University of L'Aquila**, *Assistant Professorship*, External Referee
- 2021 **Stockholm University**, *Associate Professorship*, External Referee
- 2020 **Aalto University**, *Associate Professorship*, External Referee, Finland
- 2020 **University of Leipzig**, *Full Professorship*, External Referee, Germany
- 2020 **University of Ösnabruck**, *Full Professorship*, External Referee, Germany
- 2020 **Upsala University**, *Lektor*, External Referee
- 2020 **Stockholm University**, *Lektor*, External Referee
- 2020 **ERC**, *Consolidator Grant*
- 2019 **Univ. of Leibnitz**, *Evaluation for a professorship*, Germany
- 2019 **INRIA, France**, *Evaluation research center*
- 2019 **Univ. of Vienna**, *Evaluation for full professorship*
- 2017-2021 **VR NT**, *Evaluation for international postdocs*, external evaluator

- 2015-2021 **Stockholm U, Uppsala U, Krakow U**, *Evaluation committee*, Ph.D thesis  
 2017 **Max Planck**, *Evaluation for ass. professorship*  
 2016 **U. of Oslo**, *Evaluation for ass. professorship*  
 2015 **U. of Vienna**, *Evaluation of the department of Mathematics*  
 2015 **Finland Science Academy**, *evaluation committee for research grants*  
 2013-2015 **Swedish Science Foundation**, *evaluation committee*, international post-docs

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### Selected invited presentations 2018-2024

- 2025 **invited**, *Oberwolfach*, Germany, spring  
 2025 **invited**, *Fields Institute*, Canada, fall  
 2024 **invited**, *MEGA Conference*, Germany, July  
 2024 **invited**, *Conference*, Dresden, Germany, May  
 2023 **invited**, *Conference Asymptotic Properties*, USA, August  
 2023 **invited**, *SIAM AG*, Holland, July  
 2023 **invited**, *BIRS Workshop*, Canada, March  
 2022 **invited**, *BIRS Workshop*, Canada, December  
 2022 **invited**, *Colloquium Teheran*, digital, November  
 2022 **invited**, *workshop, academy of Sciences*, Warsaw, October  
 2022 **invited**, *Applied Topology International Seminar*, digital, August  
 2022 **invited**, *ECM*, Helsinki, August  
 2022 **invited**, *ICM*, Helsinki, July  
 2022 **invited**, *MEGA*, Krakow, June  
 2022 **co-organizer**, *Mathematics of Complex Data*, KTH, June  
 2022 **Invited**, *Oberwolfach workshop*, Germany, March  
 2021 **SIAM**, *section speaker*, virtual  
 2021 **MEGA**, *section speaker*, virtual  
 2021 **TU Berlin**, *AG seminar*, virtual  
 2021 **Osnabruck**, *AG seminar*, virtual  
 2020 **Max Planck Leipzig**, *Seminar*, virtual  
 2020 **Colloquium**, *U. of Trieste*, virtual  
 2020 **ZAG online seminar**, virtual  
 2020 **Colloquium speaker**, *U. of Buenos Aires*, virtual  
 2020 **Co-chair**, *FoCM session in applied geometry*, Vancouver  
 2020 **Milestone Conference**, Berlin  
 2019 **Oberwolfach**, *workshop*  
 2019 **Oberwolfach**, *workshop*  
 2019 **Course speaker**, *Graduate school*, ICTP Trieste  
 2019 **Co-chair**, *SIAM AG*, Bern  
 2019 **SIAM AG**, Bern, July

- 2019 **Scientific Board**, *MEGA*, Madrid
- 2019 **Mini-course**, *KU*, Nairobi. Kenya
- 2019 **Cambridge**, *Colloquium*
- 2019 **Oxford**, *AG seminar*

## Publications

Google scholar profile <https://scholar.google.se/citations?user=CSt9LKcAAAAJ&hl=sv>

ArXiv profile <https://arxiv.org/search/?query=Sandra+Di+Rocco&searchtype=all&source=header>

### 10 Selected publications

- 2024 **S. Di Rocco, L. Gustafsson, L. Schaffler**, *Gaussian likelihood geometry of projective varieties*, *SIAM Journal on Applied Algebra and Geometry* 8 (1), 89-113
- 2023 **A Dickenstein, S Di Rocco, R Morrison**, *Iterated and mixed discriminants*, *Journal of Combinatorial Algebra* 7 (1), 45-81
- 2022 **S. Di Rocco, D. Eklund, O. Gäfvert**, *Sampling and homology via bottlenecks*, *Mathematics of Computations* 91, 2969-2995
- 2020 **S. Di Rocco, D. Eklund, M. Weinstein**, *The bottleneck degree of algebraic varieties*, *SIAM Journal on Applied Algebra and Geometry* 4 (1), 227-253
- 2019 **Th. Bauer, S. Di Rocco, D. Schmitz, T. Szemberg and J. Szpond**, *On the postulation of lines and a fat line*, *Journal of symbolic computation*, vol. 91, s. 3-16
- 2018 **S. Di Rocco, D. Eklund, C. Petersson**, *Numerical Polar Calculus and Cohomology of Line Bundles*, *AAM, Advances in Applied Mathematics*, vol. 100, s. 148-162
- 2018 **S. Di Rocco, K. Jabbusch and G. Smith**, *Toric vector bundles and parliaments of polytopes*, DOI: <https://doi.org/10.1090/tran/7201>, *Transactions of the AMS* vol. 370, no. 11, s. 7715-7741
- 2013 **S. Di Rocco, C. Haase, B. Nill and A. Paffenholz**, *Polyhedral adjunction theory*, *Algebra and Number Theory*. Vol. 7, No. 10, 2417–2446
- 2013 **G.M. Besana, S. Di Rocco, J.D. Hauenstein, A.J. Sommese, C.W. Wampler**, *Cell decomposition of almost real surfaces*, *Numer. Algorithms* 63
- 2010 **D. Eklund, S. Di Rocco, A.J. Sommese and C. Wampler**, *Algebraic  $C^*$ -actions and the inverse kinematics of a general 6R manipulator*, *Applied Mathematics and Computation*, 216, 9, 2512-2524