

Sandra Di Rocco

Curriculum Vitae

KTH, Mathematics
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Current academic positions

- 2020–2024 **Dean**, KTH, School of Engineering Sciences, Stockholm.
- 2010–present **Full professor**, KTH, department of Mathematics, Stockholm.

Current involvement outside academia

- 2019– **Chair of board**, DV-analytics AB, Stockholm, SWE.
- 2022– **Head of Strategic Planning**, DatANON, USA.

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.

Current service 2013–2022

- 2022– **IVA**, Royal Academy of Engineering Sciences, member elected.
- 2022– **Digital Futures**, KTH, Board.
- 2022– **Nordita Physics Center**, KTH, Board.
- 2013– **Göran Gustafsson Foundation KTH/UU**, managing board member.
- 2019–2022 **ICM 2022**, International Congress of Mathematics, Chair, Int. Advisory Board.
- 2018–2023 **KAW, Wallenberg Foundation**, Autonomous Systems and Software Program, Section: Mathematics for A.I., Steering board.
- 2019–2021 **SIAM**, Chair, Activity Group Algebraic Geometry, USA.
- 2020–2023 **ESI**, Erwin Schrödinger Institute for Physics and Mathematics, Scientific Board member, Austria.
- 2021– **Lie-Storve Center**, UIT, Scientific Advisory Board, Norway.
- 2018– **Polytechnic Torino**, SmartData Center, Scientific board, Italy.

Service 2011–2019

- 2019 **Steering board**, Natural and Engineering Sciences, VR, Swedish National Science Foundation.
- 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*.
- 2017-2019 **EMS**, *Solidarity Grants committee*, Chair.
- 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*.

Research positions and long term visiting appointments

- 2018 **Program professor**, *ICERM*, Brown, Providence, USA.
- 2017 **Program professor**, *Fields Institute*, Toronto, Canada.
- 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

Distinctions 2009-2022

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

Selected Individual Grants 2009-2022

- 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 sampling.
- 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 Geometry.
- 2011-2014 **Swedish National Science Foundation**, *[NT:2010-5563]*, Toric geometry and applications.
- 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 Science Foundation**, *[NT:2006-3539]*, Algebraic Geometry and its applications, 2.000.000 SEK.

Advising

Ph.D students

- 2020 **Jiayue Qi**, *KTH*, Guest student, Austria.
- 2019- **Lukas Gustafsson** , *KTH*, main advisor, exp. Ph.D 2024.
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
- 2022-2024 **Luca Sodomaco**, *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.**

Selected invited presentations 2019-2022

- 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*.

Organizational work 2011-2020

- 2019-2020 **Co-chair**, *FoCM*, Vancouver, Canada.
- 2019 **Co-chair**, *SIAM AG biannual conference*, Bern, Switzerland.
- 2019 **Scientific committee**, *MEGA 2019*, Madrid.
- 2018 **Co-organizer**, *Special semester: Non linear algebra*, ICERM, Brown, USA.
- 2018 **Co-organizer**, *workshop: tropical geometry*, Mittag-Leffler-KTH, april.
- 2016 **Co-organizer**, *workshop: arrangements of lines*, Oberwolfach, Gemany.
- 2015 **Organizer**, *Mini-symposium: combinatorial AG methods*, SIAM, South Korea.
- 2014 **Organizer**, *Days of Algebraic Geometry*, Mittag-Leffler, Stockholm.
- 2014 **Co-organizer**, *workshop:negative curves and linear systems*, Oberwolfach, Gemany.
- 2013 **Co-organizer**, *CIME-CIRM international graduate courses*, Levico Terme, Italy.
- 2011 **Co-organizer**, *special semester*, Institute Mittag-Leffler, Stockholm.
- 2011 **Co-organizer**, *workshop Solving polynomial equations*, KTH.
- 2011 **Co-organizer**, *conference MEGA* , Stockholm University.

Publications

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

10 Selected refereed publications

- 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, no. 4, 645D678.
- 2013 **M.A. Cueto, E. Cattani, A. Dickenstein, S. Di Rocco and B. Sturmfels**, *Mixed Discriminants*, Math. Z. 274, no. 3-4, 761D778.
- 2011 **D. Eklund, S. Di Rocco, C. Petersen and A.J. Sommese**, *Chern Numbers of Smooth Varieties via Homotopy Continuation and Intersection Theory*, J. of Symbolic Computation 46, 23D33.
- 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.