

Curriculum Vitae of Matteo Varbaro

September 23, 2015

Personal information.

Matteo Varbaro, born in Genova (Italy) on June 18, 1983. Resident in Genova (Italy).

Education.

- July 20, 2005. Bachelor degree in Mathematics at the University of Genova with honours, under the supervision of Aldo Conca.
- July 18, 2007. Master degree in Mathematics at the University of Genova with honours, under the supervision of Aldo Conca.
- April 5, 2011. PhD degree in Mathematics and Applications at the University of Genova, under the supervision of Aldo Conca.

Held positions.

- January 2008 - December 2010. Grant for the Graduate Program in Mathematics and Applications.
- January 2011 - December 2012. Postdoc at the Department of Mathematics, University of Genova, in MAT/02 Algebra.
- August 2012 - December 2012. Postdoc during the Fall semester within the special program in Commutative Algebra at the MSRI in Berkeley, US.
- December 2012 to October 2014. “Ricercatore di tipo a)” at the Department of Mathematics, University of Genova, in MAT/02 Algebra.
- Since November 2014. “Ricercatore di tipo b)” at the Department of Mathematics, University of Genova, in MAT/02 Algebra.

Grants and awards.

- September 2002 - July 2005. Grant by the “INdAM” for bachelor students in Mathematics.
- September 2005 - July 2007. Grant by the “INdAM” for master students in Mathematics.
- December 2013. Awarded with the habilitation for “Professore di II Fascia” (Associate Professor) in the area 01/A2 - GEOMETRIA E ALGEBRA.
- Principal Investigator of the PRA 2013: “Proprietà algebriche delle matroidi”, University of Genova.
- Principal Investigator of the PRA 2014: “Coomologia étale e risoluzioni di ideali monomiali”, University of Genova.

Visits and conferences.

Visits:

- Universität Osnabrück (Germany). Several invites by Winfried Bruns.
- CIRM of Trento (Italy), July 8 - 19, 2012. “Research in Pairs” with Alexandru Constantinescu and Thomas Kahle.
- MSRI, Berkeley (California), August - December 2012. Postdoctoral Fellowship during the Fall semester In Commutative Algebra; mentor: Anurag Singh.
- MFO Oberwolfach (Germany), October 11 - 24, 2015. “Research in Pairs” with Alexandru Constantinescu and Thomas Kahle.
- MPIM, Bonn (Germany), November - December 2015. Short Term Visit.

Invited speaker at the Commutative Algebra / Algebraic Geometry / Combinatorics seminars - Mathematics colloquia, organized by the universities of Genova, Firenze, Pisa, Catania (Italy), Osnabrück, Berlin, Magdeburg (Germany), Basel, Fribourg (Switzerland), Berkeley (California), Sheffield (England), Innsbruck (Austria).

Invited speaker at the workshops:

1. Università degli Studi di Genova (Italy), May 8 - 9, 2008. *Genova-Barcellona Workshop on Commutative Algebra and Applications.*
2. CIRM Luminy (France), September 29 - October 3, 2008. *Algebre commutative et ses interations avec la geometrie algebrique.*
3. Politecnico di Torino (Italy), April 15 - 16, 2010. *GTM Seminar: Some Topics in Commutative Algebra and Algebraic Geometry.*
4. CIRM Luminy (France), November 2 - 6, 2010. *Algebre commutative et ses interations avec la geometrie algebrique.*
5. Università degli Studi di Genova (Italy), June 8 - 9, 2012. *Commutative Algebra and Related Topics.*
6. MSRI Berkeley (California), December 3 - 7, 2012. *Combinatorial Commutative Algebra and its Applications.*
7. Universität Osnabrück (Germany), July 3 - 6, 2013. *Workshop celebrating the program “Kombinatorische Methoden in Algebra und Topologie”.*
8. CIRM Luminy (France), July 8 - 12, 2013. *Algebre commutative et ses interations avec la geometrie algebrique.*
9. Palazzone, Cortona (Italy), September 9 - 13, 2013. *Combinatorial Methods in Topology and Algebra.*
10. Università degli Studi di Genova (Italy), November 8, 2013. *Giornata di Geometria Algebrica Genova-Nizza.*
11. Institute of Mathematics / VIASM, Hanoi (Vietnam), December 16 - 20, 2013. *International conference on COMMUTATIVE ALGEBRA and its Interactions to Algebraic Geometry and Combinatorics.*
12. Castello del Valentino, Torino (Italy), June 4 - 7, 2014. *Giornate di Geometria Algebrica e Argomenti Correlati.*
13. Faculty of Science and Technology, Leioa (Spain), June 30 - July 4 2014. *First Joint Meeting RMSE-SCM-SEMA-SIMAI-UMI, session “Recent Developments in Commutative Algebra”.*

14. Facultat de Matemàtiques, Universitat de Barcelona (Spain), February 16 - 20 2015. *Homological Bonds between Commutative Algebra and Representation Theory*.
15. Faculty of Science of the University of Porto (Portugal), June 10 - 13 2015. *AMS-EMS-SPM International Meeting*, session “Homological and Combinatorial Commutative Algebra”.
16. Haeundae, Busan (South Korea), August 26 - 30 2015. *Szygies in Algebra and Geometry 2015*.

Organization of scientific meetings:

- Since September 2013, I am in charge of coordinating the weekly Algebra seminar in Genova.
- I co-organized the workshop “Meeting on Combinatorial Commutative Algebra” (MOCCA 2014), held from September 8th to 12th, 2014, in Levico Terme, with Alexandru Constantinescu and Thomas Kahle.
- Since 2015 I am a co-organizer of the “GTM seminar: Some Topics in Commutative Algebra and Algebraic Geometry”, a periodic meeting between the universities of Genova, Milano and Torino.

Teaching.

Academic courses at the University of Genova:

- 2010/2011, 2013/2014. Introduction to local cohomology for master and PhD students in Mathematics.
- 2013/2014, 2014/2015. Tenured of the course “Algebra Superiore 2” for master students in Mathematics.

PhD students:

- Michela Di Marca.

Master students:

- Martina Rovelli (June 2012), Gabriele Balletti (October 2014).

Other stuff:

- 2006/2007, 2007/2008 and 2009/2010. Freshmen-tutor for bachelor students in Mathematics, University of Genova.
- April 2011, April 2012. April 2013. Stage on “Graph coloring” for the high school students within the project “Lauree Scientifiche” (Department of Mathematics - University of Genova).
- August 27 - September 7, 2012. Tutorial sessions for the lectures given by Holger Brenner at the “Joint Introductory Workshop: Cluster Algebras and Commutative Algebra” at MSRI, Berkeley (California).
- Since June 2014. Member of the committee in charge of the English exam for the bachelor students in Mathematics of the University of Genova.
- July 7 - 11, 2014. Assistant of Aldo Conca, Srikanth Iyengar and Anurag Singh in the summer school for PhD students in Mathematics “Pragmatic” at the University of Catania (Italy).

Work as reviewer and referee.

I have reviewed papers for *Zentralblatt MATH* from September 2008 to June 2012. Since March 2012 I have been reviewing for *Mathematical Reviews*. I have been the referee for journals like “Compositio Mathematica”, “Transactions of the American Mathematical Society”, “International Mathematics Research Notices”, “Journal of Algebra”, “Journal of Algebraic Combinatorics”, “Algebra & Number Theory” and others.

Publications.

1. L. Sharifan, M. Varbaro, *Graded Betti numbers and ideals with linear quotients*, *Matematiche*, Vol. LXIII (2008), pp. 257-265.
2. B. Benedetti, A. Constantinescu, M. Varbaro, *Dimension, depth and zero-divisors of the algebra of basic k -covers*, *Matematiche*, Vol. LXIII (2008), pp. 117-156.
3. M. Varbaro, *Gröbner deformations, connectedness and cohomological dimension*, *J. Algebra*, Vol. 322 (2009), pp. 2492-2507.
4. M. Varbaro, *Symbolic powers and matroids*, *Proc. Amer. Math. Soc.*, Vol. 139 (2011), pp. 2357-2366.
5. B. Benedetti, M. Varbaro, *Unmixed graphs that are domains*, *Comm. Algebra*, Vol. 39 (2011), 2260-2267.
6. A. Constantinescu, M. Varbaro, *Koszulness, Krull dimension and other properties of graph-related algebras*, *J. Algebraic Combin.*, Vol. 34 (2011), pp. 375-400.
7. Le Dinh Nam, M. Varbaro, *Cohen-Macaulayness of generically complete intersection monomial ideals*, *Comm. Algebra*, Vol. 40 (2012), 931-945.
8. M. Varbaro, *Arithmetical rank of certain Segre embeddings*, *Trans. Amer. Math. Soc.*, Vol. 364 (2012), pp. 5091-5109.
9. M. Varbaro, *Cohomological and Combinatorial Methods in the Study of Symbolic Powers and Equations defining Varieties*, Ph.D. thesis.
10. A. Constantinescu, M. Varbaro, *On the h -vectors of Cohen-Macaulay Flag Complexes*, *Math. Scand.*, Vol. 112 (2013), pp. 86-111.
11. W. Bruns, A. Conca, M. Varbaro, *Relations among the Minors of a Generic Matrix*, *Adv. Math.*, Vol. 244 (2013), pp. 171-206.
12. M. Varbaro, *Cohomological and projective dimensions*, *Compositio Math.*, Vol. 149 (2013), pp. 1203-1210.
13. J. Herzog, L. Sharifan, M. Varbaro, *The possible extremal Betti numbers of a homogeneous ideal*, *Proc. Amer. Math. Soc.* 142 (2014), pp. 1875-1891.
14. G. Caviglia, A. Constantinescu, M. Varbaro, *On a conjecture of Kalai*, *Israel J. Math.*, Vol. 204 (2014), pp. 469-475.
15. A. Constantinescu, T. Kahle, M. Varbaro, *Generic and special constructions of pure O -sequences*, *Bull. Lond. Math. Soc.*, Vol. 46 (2014), pp. 924-942.
16. W. Bruns, M. Varbaro, *Partitions of single exterior type*, *Transform. Groups*, Vol. 19 (2014), pp. 969-978.
17. L.E. Miller, A.K. Singh, M. Varbaro, *The F -pure threshold of a determinantal ideal*, *Bull. Braz. Math. Soc.* (special issue - dedicated to professors Steven Kleiman and Aron Simis on the occasion of their 70th birthdays), Vol. 45 (2014), no. 4, pp. 767-775.
18. G. Caviglia, M. Varbaro, *Componentwise regularity (I)*, *J. Pure Appl. Algebra*, Vol. 219 (2015), pp. 175-182.
19. J. Jeffries, J. Montaña, M. Varbaro, *Multiplicities of classical varieties*, *Proc. Lond.*

- Math. Soc., Vol. 110 (2015), no. 4, pp. 1033–1055.
20. W. Bruns, A. Conca, M. Varbaro, *Maximal minors and linear powers*, J. Reine Angew. Math., Vol. 702 (2015), pp. 41-53.
 21. J. Herzog, L. Sharifan, M. Varbaro, *An intriguing ring structure on the set of d -forms*, to appear in the Math. Sci. Res. Inst. Publ..
 22. B. Benedetti, M. Varbaro, *On the dual graph of Cohen-Macaulay algebras*, to appear in Int. Math. Res. Not..
 23. A. Constantinescu, M. Varbaro, *h -vectors of matroid complexes*, to appear on Proceedings of CoMeTA, Springer INdAM series.
 24. A. Constantinescu, T. Kahle, M. Varbaro, *Linear syzygies, flag complexes, and regularity*, to appear in Collect. Math.
 25. Le Dinh Nam, M. Varbaro, *When does depth stabilize early on?*, to appear in J. Algebra.
 26. I.B. Henriques, M. Varbaro, *Test, multiplier and invariant ideals*, to appear in Adv. Math..
 27. K. Adiprasito, A. Goodarzi, M. Varbaro, *Connectivity of pseudomanifold graphs from an algebraic point of view*, to appear in C. R. Math. Acad. Sci. Paris.
 28. M.-L. Torrente, M. Varbaro, *An alternative algorithm for computing the Betti table of a monomial ideal*, submitted.
 29. B. Benedetti, B. Bolognese, M. Varbaro, *Regulating Hartshorne's connectedness theorem*, submitted.
 30. H. Dao, K. Han, M. Varbaro, *The influence of Serre's conditions on the h -vector*, in preparation.