

Curriculum vitae of Francesca Mantese

Education and Degrees:

October 1998: Degree in Mathematics, University of Padova, with mark 110/110 cum laude.

February 2003: Ph.D. in Mathematics, Department of Pure and Applied Mathematics, University of Padova.

Work experience:

October 2002-February 2006: Researcher position at the Department of Computer Science, University of Verona

Since March 2006: Assistant Professor of Algebra, Department of Computer Science, University of Verona.

Since March 2018: Associate Professor of Algebra, Department of Computer Science, University of Verona.

Since March 2025: National Scientific Qualification, settore concorsuale 01/A2-I fascia (Full Professor).

Research interests:

Her main research interests focus on Ring and Module theory; Representation theory of algebras; Leavitt path algebras; Tilting and cotilting theory; Homological algebra; Triangulated and derived categories; Coding Theory. She published several research articles on these topics in international journals. She regularly gives presentations at international conferences and research seminars. She was a visitor at the University of Iowa, Department of Mathematics, Iowa City, USA; Norwegian University of Science and Technology, Department of Mathematics, Trondheim, Norway; University of Colorado at Colorado Springs, Department of Mathematics, Colorado Springs, USA; University of California at Santa Barbara, Department of Mathematics, Santa Barbara, USA. She participated in national and international research projects. She organized scientific conferences on the research topics previously described.

Publications:

F.Mantese, A.Tonolo, *Homological properties of simple modules over Leavitt path algebras*, Journal of Pure and Applied Algebra (2025).

F. Mantese, L. Martini, *Cotilting dualities for artinian rings*, Springer Proceedings in Mathematics and Statistics (2025)

P.N. Anh, F. Mantese, *Non-commutative factorizations and finite-dimensional representations of free algebras*, arXiv:2403.17813.

F. Mantese, *Finitely presented modules over $L_K(1, n)$* , (preprint 2025)

G. Abrams, F. Mantese, A. Tonolo *Injective envelopes of simple modules over Leavitt path algebras*, (preprint 2025)

- F. Mantese, L. Martini *Cotilting dualities for artinian rings*, Functor and Tensor Categories, Models, and Systems, Springer Proceedings in Mathematics and Statistics 521 (2025)
- G. Abrams, F. Mantese, A. Tonolo, *Injectives over Leavitt path algebras of graphs with disjoint cycles*, J. Pure Appl. Algebra (2024)
- G. Abrams, F. Mantese, A. Tonolo, *Injective modules over the Jacobson algebra $K \langle x, y \mid xy = 1 \rangle$* , Canadian Mathematical Bulletin (2020)
- G. Abrams, F. Mantese, A. Tonolo, *Prüfer-like modules over Leavitt path algebras*, Journal of Algebra and Its Applications 18, no 8, (2019)
- G. Abrams, F. Mantese, A. Tonolo, *Leavitt path algebras are Bézout*, Israel J. of Math. 228 no 1. (2018) pp 53–78
- G. Abrams, F. Mantese, A. Tonolo, *Extensions of simple modules in Leavitt path algebras*, Journal of Algebra 431 (2015) 78-106.
- F. Mantese, A. Tonolo, *Derived dualities induced by a 1-cotilting bimodule*, J. Algebra 411 (2014) 12-46.
- F. Mantese, A. Tonolo, *On the heart associated with a torsion pair*. Topology Appl. 159 (2012), no. 9, 2483-2489.
- R. Colpi, F. Mantese, A. Tonolo, *When the heart of a faithful torsion pair is a module category*. J. Pure Appl. Algebra 215 (2011), no. 12, 2923-2936.
- S. Bazzoni, F. Mantese, A. Tonolo, *Derived equivalence induced by infinitely generated n-tilting modules*. Proc. Amer. Math. Soc. 139 (2011), no. 12, 4225-4234.
- F. Mantese, A. Tonolo, *Reflexivity in derived categories*. Forum Math. 22 (2010), no. 6, 1161-1191.
- R. Colpi, F. Mantese, A. Tonolo, *Cotorsion pairs, torsion pairs, and Σ -pure-injective cotilting modules*. J. Pure Appl. Algebra 214 (2010), no. 5, 519-525.
- F. Mantese, A. Tonolo, *On classes defining a homological dimension*. Models, modules and abelian groups, 431-444, Walter de Gruyter, Berlin, 2008.
- R. Colpi, E. Gregorio, F. Mantese, *On the heart of a faithful torsion theory*. J. Algebra 307 (2007), no. 2, 841-863.
- F. Mantese, *Complements to projective almost complete tilting modules*. Comm. Algebra 33 (2005), no. 9, 2921-2940.
- F. Mantese, I. Reiten, *Wakamatsu tilting modules*. J. Algebra 278 (2004), no. 2, 532-552. (
- F. Mantese, A. Tonolo, *Natural dualities*. Algebr. Represent. Theory 7 (2004), no. 1, 43-52.
- F. Mantese, P. Ruzicka, A. Tonolo, *Cotilting versus pure-injective modules*. Pacific J. Math. 212 (2003), no. 2, 321-332.
- F. Mantese, *Hereditary cotilting modules*. J. Algebra 238 (2001), no. 2, 462-478.
- F. Mantese, *Generalizing cotilting dualities*. J. Algebra 236 (2001), no. 2, 630-644.

Research Projects:

PRIN 1998/2000 (Scientific Coordinator: L. Salce); PRIN 2000/2002, 2002/2004, 2005/2007, 2008/10, 2009/2011 (Scientific Coordinator: A. Facchini); PRIN 2013/2015 (Coordinatore scientifico: L. Angeleri); Project GNSAGA-INDAM 2000 (Scientific Coordinator: A. Tonolo); Progetto di Ateneo dell'Università di Padova 2004/2006 (Scientific Coordinator: S. Bazzoni); Progetto Giovani Ricercatori dell'Università di Verona 2007/2008 (Scientific Coordinator: F. Mantese); Progetto di Ateneo dell'Università di Padova 2008/2010 (Scientific Coordinator: A. Tonolo); Progetto di Ateneo dell'Università di Padova 2010/2012 (Scientific Coordinator: S. Bazzoni); Progetto di Eccellenza Fondazione Cariparo 2012/2015 (Scientific Coordinator: A. Facchini); Progetto di Ateneo per la Ricerca di Base Università di Verona 2016/17 (Scientific Coordinator: L. Angeleri); Progetto di ateneo dell'Università di Padova 2017/2018 (Scientific Coordinator: A. Facchini); Progetto Cariverona 2020/2023 REDCOM (Scientific Coordinator: L. Angeleri); Simons Foundation, Mathematics and Physical Sciences-Collaboration Grants 2011/2016 (Scientific Coordinator: G. Abrams)

Organizing Committees:

Algebraic structures and their applications, June 16-20, 2014, Spineto (Siena).

Silting theory and related topics, July 2-4, 2015, Verona.

Homological methods in Representation Theory, October 3-8 2021, Fraueninsel, Germany,

Workshop Purity, approximation theory and spectra, May 2024, Cetraro.

Some recent Talks

"Irreducible representations of $K \langle x_1, \dots, x_n \rangle$ through Leavitt path algebras", May 2025, Leavitt Path Algebras at 20 (and Gene Abrams at 70), Colorado Springs.

"Irreducible representations and irreducible polynomials over free algebras", August 2024, ICRA21-International Conference on Representation of Algebras, Shanghai

"Irreducible factorisation of polynomials in non-commutative variables", June 2024, Functor and Tensor Categories, Models And Systems, Santiago de Compostela

"Finitely presented modules over LPA", September 2023, Reducing complexity in algebra, logic, combinatorics, Brixen

"On the module category of a Leavitt path algebra", February 2022, CIMPA School - From Dynamics to Algebra and Representation Theory and Back, Florianopolis

"Simple modules over Leavitt path algebras", March 2021, Additive categories between algebra and functional analysis, Université de Sherbrooke, Canada

"Injective modules over the Jacobson algebra", February 2020, Third International Conference on Mathematics and Statistics, American University of Sharjah, UAE.

"On the lattice of ideals of a Leavitt path algebra", April 2019, CIMPA-UI-IPM Isfahan School and Conference on Representations of Algebras, University of Isfahan, Iran

Teaching:

More than 30 courses at the University of Verona, since October 2004. About 15 courses or exercises classes at the University of Padova and Verona, since October 1998.

Other teaching activities:

She has been supervisor of several bachelor and master thesis in Mathematics on the following topics: Ideals over Leavitt path algebras; Dualities induced by cotilting modules; Error-correcting codes; Leslie's method in demography; Elliptic curves in cryptography; The Theorems of Perron and Frobenius for non negative matrices; Graphs associated to positive matrices; Applications of the Theorems of Perron and Frobenius on the PageRank algorithm; Topological abelian groups and Pontryagin duality; The Wedderburn theorem and some application in geometry; Finitely generated modules over P.I.D and applications; Cryptography and coding theory for secondary school, Blockchain e Smart Contracts.

Progetto Lauree Scientifiche 2005/06, 2006/07, 2008/09, 2012/13, 2013/14 in the following topics: Cryptography; Elements of graph's theory.

Progetto KidsUniversity, Università di Verona, on the topic: "The Mathematics of soap bubbles", September 2016, 2017, 2018, 2019

Institutional Roles at the Department of Computer Science, University of Verona:

November 2007-July 2009: member of the Department Board.

July 2007-October 2010: member of the Teaching Committee for the degree courses in Computer Science.

March 2006-June 2009: Coordinator of a series of seminars for the students of the Bachelor and of the Master's Degree in Mathematics.

October 2012-September 2015: Coordinator of a series of seminars *Seminari di Dipartimento*

Since October 2013: Coordinator of the Erasmus Projects with Murcia University, Spain, and Stuttgart University, Germany.

October 2015-June 2016: member of the Commissione Syllabi, for the degree courses in Mathematics

October 2018-October 2019: Member of the Commissione AQ for for the Master's degree in Mathematics

October 2019-September 2025: Program Director of the Master's Degree in Mathematics.

Since November 2022: Coordinator of Progetto Liceo Matematico.

Verona, September 3, 2026