FRANCESCO TICOZZI
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Curriculum Vitae

Francesco Ticozzi.
Born in Venice on May 3rd, 1978. Married.
Nationality: Italian.
Languages: Italian (Native), English (Fluent, certified for teaching).

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Department of Information Engineering (DEI/A, Room 317),
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EDUCATION

- January, 2007 **Dottorato (PhD)** in Automatic Control and Operations Research
  Department of Information Engineering, Università di Padova.
  Thesis: *Robustness issues in Quantum Control: A System-Theoretic Approach.*
  Advisors: Prof. A. Ferrante, Prof. M. Pavon.

- February, 2003 **Laurea Degree** in Management Engineering, Università di Padova.
  Thesis: *Problemi di Robustezza nel Controllo di Sistemi Quantistici*
  (Robustness Problems in Quantum System Control, in Italian).
  supervisors: Prof. A. Ferrante, Prof. M. Pavon.

RESEARCH INTERESTS

- Quantum dynamical systems, stability and control; quantum information applications.
- Analysis, control and estimation of networked dynamical systems.
- Linear algebraic, stochastic and variational methods in control and estimation.
- Quantum communication systems and information theory.

POSITIONS

- January 2018 – Present **Associate Professor** at the Department of Information Engineering, Università di Padova.
- November, 2007 - December 2017 Assistant Professor (*Ricercatore*) at the Department of Information Engineering, Università di Padova. With tenure (*Ricercatore Confermato*) since November 2010. In October, 2014 obtained *the national habilitation* to become an associate professor.
- July 2011 - present **Adjunct Assistant Professor** at the Department of Physics and Astronomy, Dartmouth College, Hanover (NH), USA.
- January, 2008 - April, 2008, November, 2008 - January, 2009, November, 2009 - January, 2010, and August 2010 - February 2011 Research visiting appointments at the Department of Physics and Astronomy, Dartmouth College, Hanover (NH), USA.
- February, 2007 - September, 2007 Research Associate at the Department of Information Engineering, Università di Padova.
- August, 2006 - October, 2006 Visiting researcher at the Department of Physics and Astronomy, Dartmouth College, Hanover (NH), USA.
- August, 2005 - June, 2006, Visiting Scholar (during the PhD program) at the Physics and Astronomy Department, Dartmouth College, Hanover (NH), under the supervision of Prof. L. Viola.

GRANTS AND FELLOWSHIPS

- 2015-2016 *"New challenges in reciprocal processes, Schroedinger bridges, optimal transport and their respective geometries with applications to control engineering problems for classical and quantum systems."* – research grant, Università di Padova. Co-proposer. Funded for 25k Euro.
- 2009-2012 *"QuantumFuture: Communication at the Quantum Limit"* research project, Università di Padova. Co-Principal Investigator for the Control Theory Unit, funded by the Ministry of Education and Università di Padova for 154k Euro (Project total: 1.4M Euro, Principal investigator: Prof. P. Villoresi).
- 2009-2010 *"Schroedinger Bridges for Quantum Channels: A New Approach to Information Encoding and Control Design"* – CPDA080209/08 research grant, Università di Padova. Principal Investigator. Funded for 40k Euro.
- 2008-2010 Co-Proposer of "QUINTET: A strategic project on Quantum Information Engineering @ DEI", leading to the opening of 4 assistant professor positions. Selected for funding by the Department of Information Engineering, Università di Padova.
- 2007 *C. Offelli Award* for the best young researchers in the Department of Information Engineering, Università di Padova.
- January, 2006 Foundation *A. Gini* scholarship to support a ten months research period at Dartmouth College, Hanover (NH).
- 2005 and 2006 *C. Offelli* nomination for best young researchers in the Department of Information Engineering, Università di Padova.
- November, 2003 Three years scholarship for Ph.D. in Automatic Control and Operation Research (first in the scholarship selection), Università di Padova.

SELECTED INVITED TALKS AND RESEARCH SEMINARS

- June, 2016 Research Seminar at Ecolè de Mines, Paris, France.
- May, 2016 Invited Lecturer at the first MISTEQ (*"Mesures Indirectes et Statistique des États Quantiques"*) meeting, Toulouse, France.
- May, 2016 Invited speaker at the "Workshop on Quantum Dynamics and Control", Institute Henri Poincarè, Paris, France.
- January, 2016 Research Seminar at the Dept. of Electrical and Computer Engineering, McGill University, Montreal, Canada.
- September, 2015 Invited speaker at the workshop "Quantum Thermodynamics and Quantum Information Theory", Toulouse, September 9-11, 2015.
- August, 2015 Invited speaker at the Gordon Research Conference "Quantum Control of Light and Matter", Mt. Holyoke College, South Hadley, Mass. (USA). August 2-7, 2015.
- August, 2014 Invited speaker at the "Principles & Applications of Control to Quantum Systems (PRACQSYS)", Isaac Newton Institute for Mathematical Sciences, Cambridge, UK, August 4-8, 2014.
- July, 2013 Invited speaker at the IVth QCCC Symposium on "Frontiers of Large Quantum Systems", Munich and Prien, Germany, October 17-21, 2013.
- July, 2013 Invited speaker at the AQOS summer school, Autrans, France, July 12-19, 2013.
- February, 2012 Invited speaker at a COQUIT workshop, Munich, Germany, February 12-14, 2012.
- January, 2012 Invited Research Seminar at the Departamento de Física Teórica of the Universidad Complutense de Madrid, Madrid, Spain, January 25-27, 2012. Invited by Dr. A. Rivas.
- November, 2011 Invited speaker at the workshop "Open Quantum Systems and Quantum Information Theory", Toulouse, November 16-18, 2011.
- December, 2010 *Quantum Seminar* at the Physics and Astronomy Dept., Dartmouth College (NH, USA).
- July, 2009 Research Seminar at the University of Cambridge, Cambridge, United Kingdom. Invited by Dr. S. Schirmer.
- November, 2008 Invited speaker at the "Open Quantum Systems: Decoherence and Control" workshop. ITAMP, Harvard University, Cambridge (MA).
- April, 2007 Research Seminar at SISSA-ISAS, Trieste, Italy.
- March, 2006 Research Seminar at McGill University, Montreal, Canada.

PROFESSIONAL ACTIVITIES

- Associate Editor of *System and Control Letters*, since January 2017.
- Panelist of the "*Mathematical Sciences Challenges in Quantum Information*" conference, organized by the Mathematical Division of the National Science Foundation in February 2015.
- Co-organizer with Prof. P. Dai Prà and Prof. M. Pavon of the Workshop "New challenges in reciprocal processes, Schrödinger bridges and optimal transport with applications to control engineering problems for classical and quantum systems", at the Università di Padova, Padova, Italy, May 29, 2015.
- Co-organizer with Prof. M. Pavon of the Workshop "Mathematical Aspects in Quantum Modeling, Estimation and Control" at the Università di Padova, Padova, Italy, June 25-27, 2013.
- Co-organizer with Prof. A. Sarlette of the Invited Session "Control of Quantum Mechanical Systems" at the FAC Workshop on Lagrangian and Hamiltonian Methods for Nonlinear Control, Bertinoro, Italy, August 2012.
- Co-organizer with Prof. D. D'Alessandro, Dr. F. Albertini and Dr. R. Romano of the special session "Mathematical Theory of Control of Quantum Systems" at the AMS meeting, Boston, MA. January 4-7, 2012.
- Co-organizer with Dr. F. Albertini and Prof. M. Pavon of the Workshop "Quantum Control Theory: Probabilistic and Geometrical Aspects", Università di Padova, Padova, Italy, September 28-29, 2009. Supported by the GNAMPA group of the *Istituto Nazionale di Alta Matematica* (INDAM), the Dept. of Pure and Applied Mathematics, the Dept. of Information Engineering and the University of Padova.
- Co-organizer with Prof. M. Pavon of the Invited Session "Control of Quantum Mechanical Systems" at the PHYSCON 2007 conference, Potsdam, Germany, September 2007.
- Member of SIDRA (Società Italiana Docenti e Ricercatori in Automatica), Istituto Nazionale di Alta Matematica (INDAM, GNAMPA group) and IPACS (International Physics and Control Society).
- Reviewer of research proposals for the *Natural Science and Engineering Research Council of Canada* (NSERC).
- Referee for the *IEEE Transactions on Automatic Control*, *Automatica*, *Systems and Control Letters*, *IEEE Transactions on Control Systems Technology*, *International Journal of Control*, *Journal of Physics A and B*, *Journal of Statistical Physics*, *Quantum Information and Computation* and *IEEE Control and Decision*, *Symposiums on Mathematical Theory of Network and Systems* and *Physics and Control* Conferences.

TEACHING

- June 2016, "*Quantum Statistical Dynamics and Control*",
  16 hours course, PhD Schools in Information Engineering and Computational Mathematics, Università di Padova, Department of Information Engineering.
- March-June, 2014, 2015 and 2016 "*Advanced Control Techniques*",
  1 semester, 48 hours course for the Automation Engineering M.S. programs on *nonlinear systems and control*, Università di Padova, Department of Information Engineering.

- July, 2014 "*Quantum Dynamical Semigroups: Stability, Invriant Structures and Applications*", 8 hours mini-course for the "Current Topics in Mathematical Physics" program, Department of Mathematics and Statistics, McGill University, Montreal (CA).

- February-June, 2012 and 2013 "*Digital control systems*", 1 semester, 48 hours course for the Automation Engineering M.S. programs , Università di Padova, Department of Information Engineering.

- February-June, 2009 and 2010 "*Control Laboratory I*", 1 semester, 78 hours course for the Automation Engineering B.S. and M.S. programs , Università di Padova, Department of Information Engineering.

- February-June, 2008 Teaching Assistant for "*Control Laboratory II*", 1 semester, 78 hours course for the Automation Engineering B.S. and M.S. programs , Università di Padova, Department of Information Engineering. Instructor: Prof. R. Oboe.

- January-February, 2009, 2012, 2013, June 2010, "*Topics in Quantum Information*", 16-20 hours course, PhD Schools in Information Engineering and Computational Mathematics, Università di Padova, Department of Information Engineering.

- May, 2006 "*An Invitation to Quantum Probability*", special lecture for P103, "*Quantum Mechanics II*". Dartmouth College, Hanover, NH. Instructor: L.Viola.

- January-March, 2006 Teaching Assistant for the course P91 "*Advanced Quantum Mechanics*", Dartmouth College, Hanover, NH, including office hours. Instructor: L.Viola.

- October-December, 2003 and 2004
  Teaching Assistant for the course *"Signals and Systems"*, B.S. in Computer Engineering at the Università di Padova, in collaboration with "Padova Ricerche". About four hours a week for nine weeks, about 40 hours of lectures and tutorials. Instructor: L.Finesso.

- May, 2003 *"Introduction to Quantum Control and Computation"*, 20 hours course for the Ph.D. program in "Automatic Control and Operation Resarch", Università di Padova, Department of Information Engineering.

MENTORING

Doctorate students, advisor

- Luca Mazzarella, 2011-2014. *PhD student*, School of Information Engineering, Department of Information Engineering. Research project on *modeling and control of discrete-time dynamics on quantum networks.* Graduated in September 2014. Currently Post-Doc at Strathclyde University, Glasgow, UK. Publications [11, 13, 19, 44, 45]

Doctorate students, co-advising and collaborating

- Simon Apers, 2015-2016. *PhD Candidate*, Electrical Engineering Dept., Ghent University. Research on *classical and quantum walks, Markov chains and feedback models.* Publications [38, 71, 72].

- Salini Karuvade, 2015-2016. *PhD Candidate*, Physics and Astronomy Department, Dartmouth College. Research on *stabilizability of entanglement in multipartite systems.* Publications in preparation.

- Peter D. Johnson, 2014-2016. *PhD Candidate*, Physics and Astronomy Department, Dartmouth College. Research on *quasi-local dynamics and states on networks*. Publications [4, 8, 39, 2].
- Giacomo Baggio, 2014-2016. *PhD Candidate*, School of Information Engineering, Department of Information Engineering. Research on *quantum dead-beat behaviors on networks*. Publication in preparation.
- Nicola Dalla Pozza, 2011-2012. *PhD Candidate* School of Information Engineering, Department of Information Engineering. Research on *quantum communication and optimal information encoding*. Publications [73, 17].
- Mattia Zorzi, 2011-2012. *PhD Candidate*, School of Information Engineering, Department of Information Engineering. Research on *quantum channel estimation*. Publications [46, 17, 16].
- Saverio Bolognani, 2009-2010. *PhD Candidate* , Department of Information Engineering. Research on *quantum discrete-time feedback*. Related publications [27, 54, 53].

Master and Bachelor Thesis

- Angela Fontan, 2016. Master Thesis on *non-trivial equilibria of cooperative nonlinear dynamics*.
- Luca Zuccato, 2015. Master Thesis on *von Neumann's alternated projection theorem, extensions and applications*. Related publication conditionally accepted [2].
- Antonio Orvieto, 2015. Bachelor Thesis on *quantum probability approaches to quantum mechanics and its fundamental issues*.
- Luca Tosetto, 2014. Master Thesis on *model-predictive control: from theory to applications in driving simulators*.
- Ilaria Panardo, 2014. Master Thesis on *periodic system in control theory and applications*.
- Precious Ugo Abara, 2014. Master Thesis on *stability of nonlinear network dynamics*. Related publication [3, 43].
- Pierre Scaramuzza, 2014. Master Thesis on *switching methods for controlled quantum dynamics*. Related publications [10, 42]
- Giuseppe Ilario Cirillo, 2014. Master Thesis on *invariance and Convergence for Discrete-Time Quantum Dynamical Semigroups*. Related publication [12]
- Alberto Dalla Libera, 2012. Bachelor Thesis on *quantum walks*.
- Marco Gazzola, 2012. Bachelor Thesis on *dissipative systems and feedback interconnections*.
- Giacomo Baggio, 2011. Bachelor Thesis, research project on *discrete-time feedback for state stabilization*. Related publication [48].
- Stefano Patron, 2011. Bachelor Thesis, research project on *conditions for convergence in consensus: an analysis of limit cases*.
- Riccardo Lucchese, 2010. Bachelor Thesis, research project on *speed of convergence of quantum dynamical semigroups*. Related publications [51, 23].
- Francesco Guarato, 2008 Master Thesis, research project on *Lyapunov analysis of discrete-time feedback control of quantum systems*, co-advised with Prof. M. Pavon.

- Enrico Avventi, 2005 Master Thesis, research project on *Hamiltonian compensation of quantum jumps*, co-advised with Prof. M. Pavon and Prof. A. Ferrante.

PRESENT AND PAST COLLABORATIONS

Dr. C. Altafini (SISSA, Trieste), Dr. F. Albertini (Univ. di Padova), Simon Apers (Ghent Univ), Dr. T. Benoist (U. Toulouse), Dr. S. Bolognani (Univ. Padova), Dr. C. Bonato (Univ. Leiden), Prof. P. Cappellaro (MIT), Prof. P. Dai Pra (Univ. Padova), Prof. D. D'Alessandro (Iowa State University), N. Dalla Pozza (Univ. Padova), Prof. A. Ferrante (Univ. di Padova), V. Jaksic (McGill), P. D. Johnson (Dartmouth College), Dr. K. Khodjasteh (Dartmouth College), Dr. N. Laurenti (Univ. Padova), Dr. K. Nishio (Tokio Inst. Tech, Japan), Prof. M. Pavon (Univ. di Padova), Prof. M. G. A. Paris (Poli. Milano), Dr. C. Pellegrini (U. Toulouse, France), Prof. A. Sarlette (Univ. Ghent, Belgium/INRIA Paris), Dr. S. Schirmer (Swansea Univ.), Prof. A. S. Sergienko (Boston Univ., USA), Dr. Y. Strauss (Ben-Gurion University of Negev, Israel), Dr. G. Vallone (Univ. Padova), Prof. P. Villoresi (Univ. di Padova), Prof. L. Viola (Dartmouth College, NH), Dr. X. Wang (Univ. Mass. Boston), M. Zorzi (Univ. Padova).

PUBLICATIONS

Journal Papers:

[1] S. Karuvade, P.D. Johnson, F. Ticozzi, L. Viola. Generic pure quantum states as steady states of quasi-local dissipative dynamics. To appear on *Journal of Physics A: Mathematical and Theoretical*, 2018.

[2] F. Ticozzi, L. Zuccato, P. D. Johnson, L. Viola. Alternating Projections Methods for Discrete-time Stabilization of Quantum States. *IEEE Transactions on Automatic Control*, 2018. Early access article: 10.1109/TAC.2017.2731903.

[3] P. Ugo Abara, F. Ticozzi, C. Altafini. Spectral conditions for existence, uniqueness and stability of positive equilibria for a class of nonlinear cooperative systems. *IEEE Transactions on Automatic Control*, 63(2):402-417, 2018.

[4] P. D. Johnson, F. Ticozzi, L. Viola. Exact stabilization of entangled states in finite time by dissipative quantum circuits. *Physical Review A*, 96: 012308, 2017. Preprint: arXiv:1703.06183.

[5] F. Ticozzi, L. Viola. Quantum and classical resources for unitary design of open-system evolutions. Quantum Science and Technology, 2(3):034001, 2017.

[6] T. Benoist, C. Pellegrini, F. Ticozzi. Exponential Stability of Subspaces for Quantum Stochastic Master Equations. *Annales Henri Poincaré*, 18:2045, 2017.

[7] F. Ticozzi. Symmetrizing quantum dynamics beyond gossip-type algorithms *Automatica*, 74:38-46, 2016.

[8] P.D. Johnson, F. Ticozzi, L. Viola. General fixed points of quasi-local frustration-free quantum semigroups: from invariance to stabilization *Quantum Information and Computation*, 16(7&8): 0657–0699, 2016.

[9] M. Schiavon, P. Vallone, F. Ticozzi, P. Villoresi. Heralded single photon sources for QKD applications. *Physical Review A*, 93:012331, 2016.

[10] P. Scaramuzza, F. Ticozzi. Switching Quantum Dynamics for Fast Stabilization. *Physical Review A*, 91: 062314, 2015.

[11] L. Mazzarella, A. Sarlette, F. Ticozzi. Extending Robustness and Randomization from Consensus to Symmetrization Algorithms. *SIAM Journal of Control and Optimization,* 53(4): 2076–2099, 2015.

[12] G. I. Cirillo, F. Ticozzi. Decompositions of Hilbert Spaces, Stability Analysis and Convergence Probabilities for Discrete-Time Quantum Dynamical Semigroups. *Journal of Physics A: Mathematical and Theoretical*, 48(8):085302, 2015.

[13] L. Mazzarella, A. Sarlette, F. Ticozzi. Consensus for Quantum Networks: Symmetry from Gossip Interactions. *IEEE Transactions on Automatic Control*, 60(1): 158 - 172, 2015.

[14] F. Ticozzi, L. Viola. Quantum resources for purification and cooling: fundamental limits and opportunities. *Scientific Reports* (Nature Publishing Group), 4: 5192, 2014

[15] C. Sparaciari, S. Olivares, F. Ticozzi, M. G. A. Paris. Exact and approximate solutions for the quantum minimum-Kullback-entropy estimation problem. *Physical Review A* 89: 042124 (2014).

[16] M. Zorzi, F. Ticozzi and A. Ferrante. Minimum Relative Entropy for Quantum Estimation: Feasibility and General Solution. *IEEE Transactions on Information Theory,* 60 (1): 357–367, 2014.

[17] M. Zorzi, F. Ticozzi and A. Ferrante. On quantum channel estimation with minimal resources. *Quantum Information Processing,* 13 (3): 683–707, 2014.

[18] F. Ticozzi and L. Viola. Steady-state entanglement by engineered quasi-local Markovian dissipation. *Quantum Information and Computation*, 14(3-4): 0265-0294, 2014.

[19] L. Mazzarella, F. Ticozzi, A. V. Sergienko, G. Vallone, P. Villoresi. Asymmetric architecture for heralded single photon sources. *Physical Review A*, 88(2): 023848, 2013.

[20] C. Altafini, K. Nishio and F. Ticozzi. Stabilization of Stochastic Quantum Dynamics via Open and Closed Loop Control. *IEEE Transactions on Automatic Control* 58(1), 74–85, 2013.

[21] F. Ticozzi and L. Viola. Stabilizing entangled states with quasi-local quantum dynamical semigroups. *Philosophical Transaction of the Royal Society A*, 370(1978): 5259-5269, 2012.

[22] C. Altafini and F. Ticozzi. Modeling and Control of Quantum Systems: An Introduction. *IEEE Transactions on Automatic Control*, 57(8):1898–1917, 2012.

[23] F. Ticozzi, R. Lucchese, P. Cappellaro, and L. Viola. Hamiltonian Control of Quantum Dynamical Semigroups: Stabilization and Convergence Speed. *IEEE Transactions on Automatic Control*, 57(8):1931–1944, 2012.

[24] F. Albertini and F. Ticozzi. Discrete-Time Controllability for Feedback Quantum Dynamics. *Automatica* 47 (2011): 2451–2456, 2011.

[25] A. Ferrante, F. Ramponi and F. Ticozzi. On the convergence of an efficient algorithm for Kullback-Leibler approximation of spectral densities. *IEEE Transactions on Automatic Control*, 56(3):506-515, 2011.

[26] F. Ticozzi, S. G. Schirmer and X. Wang. Stabilizing Quantum States by Constructive Design of Open Quantum Dynamics. *IEEE Transactions on Automatic Control*, 55(12):2901-2905, 2010.

[27] S. Bolognani and F. Ticozzi. Engineering Stable Discrete-Time Quantum Dynamics via a Canonical QR Decomposition. *IEEE Transactions on Automatic Control*, 55(12):2721-2734, 2010.

[28] F. Ticozzi and M. Pavon. On Time-reversal and space-time harmonic processes for Markovian quantum channels. *Quantum Information Processing*, 9(5):551-574, 2010.

[29] M. Pavon and F. Ticozzi. Maximum entropy on path space for classical and quantum Markov processes. *Journal of Mathematical Physics*, 51:042104, 2010.

[30] F. Ticozzi and L. Viola Quantum information encooding, protection and correction via trace-norm isometries. *Physical Review A*, 81(3):032313, 2010. Selected for the March 2010 issue of the *Virtual Journal of Quantum Information*.

[31] F. Ticozzi and L. Viola Analysis and synthesis of attractive quantum Markovian dynamics. *Automatica*, 45:2002–2009, 2009.

[32] F. Ticozzi and L. Viola. Quantum Markovian Subsystems: Invariance, Attractivity and Control. *IEEE Transactions on Automatic Control*, 53(9):2048-2063, 2008.

[33] F. Ticozzi and A. Ferrante. Dynamical Decoupling in Quantum Control: A System Theoretic Approach. *Systems and Control Letters*, 55:578–584, 2006.

[34] M. Pavon and F. Ticozzi. On entropy production for controlled Markovian evolution. *Journal of Mathematical Physics*, 47:063301, 2006.

[35] F. Ticozzi and L. Viola. Single-bit feedback and quantum dynamical decoupling. *Physical Review A* 74, 052328, 2006. Selected for the December 2006 issue of the *Virtual Journal of Quantum Information*.

[36] F. Ticozzi. Optimal commuting approximation of Hermitian operators. *Linear Algebra and its Applications*, 400C:319–325, 2005.

[37] F. Ticozzi, A. Ferrante, and M. Pavon. Robust steering of n-level quantum systems. *IEEE Transactions on Automatic Control*, 49(10):1742–5, 2004.

Conference Papers:

[38] When does memory speed up mixing?. IEEE Conference on Decision and Control proceedings, 4940–4945, 2017.

[39] F. Ticozzi, P. D. Johnson, L. Viola. Distributed finite-time stabilization of entangled quantum states on tree-like hypergraphs. IEEE Conference on Decision and Control proceedings, 5517–5522, 2017.

[40] S. Apers, F. Ticozzi, A. Sarlette. Bounding the convergence time of local probabilistic evolution *International Conference on Geometric Science of Information*, 754-762, 2017.

[41] P. Ugo Abara, F. Ticozzi, C. Altafini. An infinitesimal characterization of nonlinear contracting interference functions IEEE Conference on Decision and Control proceedings, 5257–5262, 2016.

[42] P. Scaramuzza, F. Ticozzi. Switching quantum dynamics for fast preparation of pure states. 54th IEEE Conference on Decision and Control proceedings, 6434–6440, 2015.

[43] P. Ugo Abara, F. Ticozzi, C. Altafini. Existence and stability properties of positive equilibria for a class of nonlinear cooperative systems IEEE Conference on Decision and Control proceedings, 4406–4411, 2015.

[44] F. Ticozzi, L. Mazzarella, A. Sarlette, Symmetrization for Quantum Networks: a Continuous-Time Approach. *Proceedings of the Sixteenth International Symposium on Mathematical Theory of Network and Systems*, 2014.

[45] L. Mazzarella, A. Sarlette, F. Ticozzi. A New Perspective on Gossip Iterations: from Symmetrization to Quantum Consensus. 52st IEEE Conference on Decision and Control proceedings, 250-255, 2013.

[46] M. Zorzi, F. Ticozzi, A. Ferrante. Minimal Resources for the Estimation of Trace-Preserving Quantum Channels. 51st IEEE Conference on Decision and Control proceedings, 1674–1679, 2012.

[47] F. Ticozzi, K. Nishio and C. Altafini. Environment-Assisted and Feedback-Assisted Stabilization of Quantum Stochastic Evolutions. 51st IEEE Conference on Decision and Control proceedings, 3620–3625, 2012.

[48] G. Baggio, F. Ticozzi and L. Viola. Quantum State Preparation by Controlled Dissipation in Finite Time: From Classical to Quantum Controllers. 51st IEEE Conference on Decision and Control proceedings, 1072–1077, 2012.

[49] F. Ticozzi and L. Viola, On the Role of Hamiltonians for Dissipative Entanglement Engineering. fourth IFAC Workshop on Lagrangian and Hamiltonian Methods for Nonlinear Control proceedings, Volume 4, Part 1, 220–225, 2012.

[50] R. Corvaja, I. Capraro, A. Dall'Arche, N. Dalla Pozza, F. Gerlin, A. Tomaello, M. Zorzi, A. Assalini, A. Ferrante, G. Pierobon, F. Ticozzi, G. Vallone, P. Villoresi. Engineering a Long Distance Free-Space Quantum Channel. Invited paper at *Isabel 2011* conference, Barcelona, Spain, 2011.

[51] R. Lucchese and F. Ticozzi. Computing and controlling the convergence speed of a quantum dynamical semigroup, *IEEE CDC 2010 conference proceedings*, 3022-3027, December 2010.

[52] M. Pavon and F. Ticozzi. Schrödinger Bridges for Discrete-Time, Classical and Quantum Markovian Evolutions. *Proceedings of the Sixteenth International Symposium on Mathematical Theory of Network and Systems*, July, 2010.

[53] S. Bolognani and F. Ticozzi. On a Canonical QR Decomposition and Feedback Control of Discrete-Time Quantum Dynamics. *Proceedings of the Sixteenth International Symposium on Mathematical Theory of Network and Systems*, July, 2010.

[54] S. Bolognani and F. Ticozzi. Pure state stabilization with discrete-time quantum feedback 2010. Invited paper, *Proceedings of the 4th International Symposium on Communications, Control and Signal Processing* (ISCCSP2010).

[55] F. Ticozzi and M. Pavon. Time-reversal and strong H-theorem for quantum discrete-time Markov channels. September 2009. *From Physics to Control through an Emergent View* (selected papers from the PhysCon09 conference proceedings), Eds. L. Fortuna, A. Fradkov and M. Frasca, World Scientific Series on Nonlinear Science, Series B - Vol. 15. IPACS on-line library: `http://lib.physcon.ru/?item=1918`

[56] M. Pavon and F. Ticozzi. Schrödinger bridges for classical and quantum discrete-time Markovian evolutions. September 2009. PhysCon09 conference. IPACS on-line library: `http://lib.physcon.ru/?item=1917`

[57] L. Viola and F. Ticozzi. Attractive quantum subsystem and feedback-stabilization problems. September 2007. PhysCon07 conference. IPACS on-line library: `http://lib.physcon.ru/?item=1317`

[58] F. Ticozzi and A. Ferrante. Finding quantum noiseless subsystems: A linear-algebraic approach. September 2007. PhysCon07 conference. IPACS on-line library: `http://lib.physcon.ru/?item=1377`

[59] M. Pavon and F. Ticozzi. Controlling the density evolution of classical, thermodynamic and quantum systems. December 2005. *IEEE CDC-ECC '05 conference proceedings*, CD-ROM, Paper N. 1800.

[60] M. Pavon and F. Ticozzi. Controlling the relative entropy evolution of classical, thermodynamic and quantum systems. August 2005. *PHYSCON 2005 conference proceedings*, CD-ROM, Paper N. 1.

[61] F. Ticozzi and A. Ferrante. Linear algebraic techniques for quantum dynamical decoupling. December 2005. *IEEE CDC-ECC '05 conference proceedings*, CD-ROM, Paper N. 1806.

[62] F. Ticozzi, A. Ferrante, and M. Pavon. Stability and robustness in coherent quantum control. *Proceedings of the Sixteenth International Symposium on Mathematical Theory of Network and Systems*, July, 2004.

PhD Thesis:

[63] F. Ticozzi. *Robustness Issues in Quantum Control: A System-Theoretic Approach.* Dottorato in "Automatica e Ricerca Operativa", XIX Ciclo. Dipartimento di Ingegneria dell'Informazione, Università di Padova December, 2006.

Posters:

[64] F. Ticozzi, L. Viola. Quantum Dynamical Semigroups for Entangled Pure State Preparation. *Gordon Research Conference 2013* on "Quantum Control of Light and Matter", Mount Holyoke College, August 2013.

[65] N. Dalla Pozza, N. Laurenti, F. Ticozzi. Optimal Binary Codes and Measurements for Classical Communication over Qubit Channels. International Conference on Ultrafast Structural Dynamics Berlin, Germany. March 19-21, 2012.

[66] F. Ticozzi, R. Lucchese, P. Cappellaro and L. Viola. Computing and controlling the convergence speed of controlled Markovian dynamics, *Quantum Science and Technologies* workshop, Rovereto, May 2011. December 2010.

[67] F. Ticozzi, L. Viola. Engineering Quantum Information in Markovian Dynamical Systems. *Gordon Research Conference 2009* on "Quantum Control of Light and Matter", Mount Holyoke College, August 2009.

[68] F. Ticozzi, L. Viola. Engineering Quantum Information in Markovian Dynamical Systems. *IQIS '08 Poster Session*, Università di Camerino, October 2008.

[69] F. Ticozzi, L. Viola. Information, Feedback and Quantum Dynamical Decoupling. *PRACQSYS '06 Poster Session*, Harvard University, August 2006.

[70] F. Ticozzi, A. Ferrante, and M. Pavon. Robustness in coherent quantum control. *CIRA Poster Session*, Cagliari, 2004.

Under Review and Preprint:

[71] S. Apers, A. Sarlette, F. Ticozzi. Simulation of Quantum Walks and Fast Mixing with Classical Processes arXiv:1712.01609, 2017.

[72] S. Apers, F. Ticozzi, A. Sarlette. Lifting Markov Chains To Mix Faster: Limits and Opportunities arXiv:1705.08253, 2017.

[73] N. Dalla Pozza, N. Laurenti, F. Ticozzi. Optimal Binary Codes and Measurements for Classical Communication over Qubit Channels. arxiv:1304.0014, 2013.

[74] C. Altafini, F. Ticozzi. Almost Global Stochastic Feedback Stabilization of Conditional Quantum Dynamics. arXiv:quant-ph/0510222, 2005.