Daniela Sforza's Curriculum

In 1982 Daniela Sforza got her degree in Mathematics at the University of Bari.

In 1983 she won a four-year fellowship to attend the courses of Dottorato di Ricerca in Matematica at the University of Pisa.

In 1988 she became Dottore di Ricerca in Matematica with a thesis entitled "Integro-differential equations in Banach spaces", written under the supervision of professor Giuseppe Da Prato (Scuola Normale Superiore di Pisa).

In the years 1987-88, 1988-89 and 1989-90 she won three annual fellowships of the Istituto Nazionale di Alta Matematica (INdAM) to continue her research at the University of Pisa under the supervision of professor Giuseppe Da Prato.

In 1990 Daniela Sforza became Researcher of Mathematical Analysis at the Department of Mathematics, University of Pisa.

Since 1992 she is Associate Professor of Mathematical Analysis at Sapienza University of Rome: 1992-2009 at the Department of Methods and Mathematical Models for Engineering, 2010-present at the Department of Basic and Applied Sciences for Engineering.

Daniela Sforza's scientific interests include partial differential equations and control theory.

She studied integro-differential equations in the abstract setting of Hilbert spaces. By using the approach of the Semigroup Theory, she established existence of solutions and well-posedness of integro-differential equations when the Laplace transform of the integral kernel satisfies suitable assumptions.

Her other research topics regard the stabilization of general second order integro-differential evolution equations with semilinear source terms. In particular, the problem to derive decay estimates for the energy of the solutions under the assumptions of analogous decay conditions for the integral kernels.

Her current research is mainly concerned with the control of evolution equations. In view of the duality between controllability and observability assured by the Hilbert Uniqueness Method due to Jacques-Louis Lions, in her research papers Daniela Sforza utilizes non-harmonic analysis techniques to obtain observability estimates for the solutions of evolution equations with memory.

Daniela Sforza has been invited to deliver lectures at international conferences and universities. She participated in the organization of international conferences. In 2006 she visited as invited professor the University of Metz (France).

Daniela Sforza currently collaborates as peer reviewer with several international mathematical journals, such as: Journal of Differential Equations, Applied Mathematics and Optimization, Journal of Mathematical Analysis and Applications, Nonlinear Analysis Series A: Theory, Methods and Applications, Mediterranean Journal of Mathematics.

List of talks of the last years:

"Hidden regularity for viscoelastic problems" XXI Congresso U.M.I., Pavia, 2–7 settembre 2019.

"The direct inequality for second order evolution equations with memory" Indam Intensive Period 2019 "Shape optimization, control and inverse problems for PDEs" Naples,

July 9 2019.

"Regularity features for integrodifferential equations" International Conference on Elliptic and Parabolic Problems, Gaeta (Italy), May 20-24, 2019.

"Hidden regularity for evolution equations with memory" New trends in control of evolution systems, Gran Sasso Science Institute - GSSI L'Aquila, April 20 - 21, 2018.

"Impacts on reachability for coupled integro-differential equations" BIRS Workshop Women in Control: New Trends in Infinite Dimensions, Banff (Canada), July 16-21, 2017.

"Consequences of coupling in control problems with memory" International conference on Elliptic and Parabolic Problems, Gaeta (Italy), May 22-26, 2017.

"Problemi di raggiungibilità per equazioni integro-differenziali", Alfredo Lorenzi Analysis Seminar, Dipartimento di Matematica "F. Enriques" Università di Milano, 14 marzo 2017.

"Observability and partial observability for viscoelastic systems" New advances in PDE's, Inverse Problems and Control Theory, Parma July 6 - 10, 2015.

"Effects of memory terms on observability inequalities" 27th IFIP TC7 Conference 2015 Sophia Antipolis, June 29 - July 3 2015.

"Problemi di raggiungibilità per equazioni integro-differenziali" INCONTRO DI MATEMATICA ALLA SAPIENZA, Roma 16-17 febbraio 2015.

"Reachability for integro-differential equations" Partial Differential Equations, Inverse Problems and Control Theory, Conference in memory of Alfredo Lorenzi, Bologna, September 15 - 19, 2014.

"Coupled integro-differential equations" Control of Partial Differential Equations: Theory, Numerics and Applications, First Joint International Meeting RSME-SCM-SEMA-SIMAI-UMI, Bilbao, Spain, June 30 - July 4, 2014.

"Controllability for multidimensional problems with memory" Controllability and networks, Conference in honour of the 60th birthday of Vilmos Komornik, Rome, May 26 - 28, 2014.

"Reachability results for integral equations and the coupling problem" Differential Equations, Inverse Problems and Control Theory, Cortona, June 17 - 21, 2013.

"Stabilization for nonlinear integro-differential equations with weakly singular kernels" Politecnico di Torino SIMAI Congress, June 25-28, 2012.

"Nonlinear Evolution Equations with Weakly Singular Memory" Dipartimento di Matematica Università di Roma Tor Vergata, 1 giugno 2012.

"Control problems for coupled systems with memory terms" Mathematical Models and Analytical Problems in Special Materials, Rome, April 16-20, 2012.

List of publications of the last years:

Antonio Agresti, Paola Loreti, Daniela Sforza, Time memory effect in entropy decay of Ornstein-Uhlenbeck operators. Minimax Theory Appl. 6 (2021), no. 2, 173190.

Paola Loreti, Daniela Sforza, Reachability problems for a wave-wave system with a memory term. Evol. Equ. Control Theory 9 (2020), no. 1, 87130.

Paola Loreti, Daniela Sforza, A semilinear integro-differential equation: global existence and hidden regularity. Trends in control theory and partial differential equations, 157180, Springer INdAM Ser., 32, Springer, Cham, 2019.

Paola Loreti, Daniela Sforza, Viscoelastic aspects of glass relaxation models. Phys. A 526 (2019), 120768, 10 pp.

Paola Loreti, Daniela Sforza, Inverse observability inequalities for integrodifferential equations in square domains. Evol. Equ. Control Theory 7 (2018), no. 1, 6177.

Paola Loreti, Daniela Sforza, Masahiro Yamamoto, Carleman estimate and application to an inverse source problem for a viscoelasticity model in anisotropic case. Inverse Problems 33 (2017), no. 12, 125014, 28 pp.

Paola Loreti, Daniela Sforza, Masahiro Yamamoto, Carleman estimates for integrodifferential parabolic equations with singular memory kernels. J. Elliptic Parabol. Equ. 3 (2017), no. 1-2, 5364.

Paola Loreti, Daniela Sforza, The Hilbert Uniqueness Method for a Class of Integral Operators, System Modeling and Optimization 27th IFIP TC 7 Conference, CSMO 2015, Sophia Antipolis, France, June 29 - July 3, 2015, Editors: Bociu, Lorena, Désidéri, Jean-Antoine, Habbal, Abderrahmane (Eds.), Volume 494 of the IFIP Advances in Information and Communication Technology series (2016), 351–359.

Paola Loreti, Daniela Sforza, Hidden regularity for wave equations with memory, Riv. Mat. Univ. Parma, 7 (2016), 391–405.

Paola Loreti, Daniela Sforza, (2016). Observability of N-dimensional integro-differential systems. DISCRETE AND CONTINUOUS DYNAMICAL SYSTEMS. SERIES S, vol. 9, p. 745-757, ISSN: 1937-1632, doi: 10.3934/dcdss.2016026

Paola Loreti, Daniela Sforza, (2015). Partial observability of a wave-Petrovsky system with memory. ELECTRONIC JOURNAL ON THE QUALITATIVE THEORY OF DIFFERENTIAL EQUATIONS, vol. 90, p. 1-10, ISSN: 1417-3875

Paola Loreti, Daniela Sforza, (2015). Symmetries for an integro-differential equation in a disk. In: Proceedings 10th Workshop on Functional Analysis and its Applications in Mathematical Physics and Optimal Control. p. 34-38, Bratislava: Michal Zajac, Igor Bock, ISBN: 978-80-227-4411-9, Kočovce, Slovak Republic, September 7-12, 2015

Paola Loreti, Daniela Sforza, Control problems for weakly coupled systems with memory, Journal of Differential Equations, 257 (2014), no. 6, 1879–1938.

Paola Loreti, Luciano Pandolfi, Daniela Sforza, Boundary controllability and observability of a viscoelastic string, SIAM Journal on Control and Optimization 50 (2012), no. 2, 820–844, ISSN: 0363-0129, doi: 10.1137/110827740.

Teaching

Since the academic year 1992-93 she teaches undergraduate courses of Mathematical Analysis to students of the Faculty of Engineering, Sapienza University of Rome.

The following teaching courses have been taught by Daniela Sforza in the last years:

Academic Year 2020-2021, Analisi Matematica I, Ingegneria delle Comunicazioni-Ingegneria Elettronica, Facoltà di Ingegneria dell'Informazione, Informatica e Statistica.

Academic Year 2019-2020, Analisi Matematica I, Ingegneria delle Comunicazioni-Ingegneria Elettronica, Facoltà di Ingegneria dell'Informazione, Informatica e Statistica.

Academic Year 2018-2019, Analisi Matematica I, Ingegneria delle Comunicazioni-Ingegneria Elettronica, Facoltà di Ingegneria dell'Informazione, Informatica e Statistica.

Academic Year 2017-2018, Analisi Matematica I, Ingegneria delle Comunicazioni-Ingegneria Elettronica, Facoltà di Ingegneria dell'Informazione, Informatica e Statistica.

Academic Year 2016-2017, Analisi Matematica I, Ingegneria delle Comunicazioni-Ingegneria Elettronica, Facoltà di Ingegneria dell'Informazione, Informatica e Statistica.