

**TO THE 70TH ANNIVERSARY  
OF PROFESSOR ANGELO FAVINI**



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It is really a pleasure and a honour to write the preface of this volume dedicated to Professor Angelo Favini on the occasion of his 70th birthday.

Angelo Favini was born on July 4th, 1946. He graduated on November 28th, 1969 discussing his diploma thesis prepared under the supervision of Professor Bruno Pini, one of the greatest mathematicians of the last century.

He started his academic career in 1971 as Assistant professor at the University of Bologna and on March 1976 he got a position as full professor at the same university. His very intense research activity spreads out into several fields:

- abstract differential equations in Banach spaces;
- control theory;
- degenerate equations;
- interpolation theory;
- inverse and ill-posed problems;
- partial differential equations.

In his career he authored (or coauthored) about 230 scientific papers, most of them published on international mathematical journals. He coauthored also two scientific monographs on degenerate equations, one of them (in collaboration with G. Marinoschi)

devoted to the analysis of nonlinear second-order convection-diffusion equations with singular and possibly multivalued diffusion, and the other one (in collaboration with A. Yagi) on abstract degenerate equations of parabolic and hyperbolic type. Angelo Favini contributed to key developments in the theory of abstract degenerate equations and his second quoted book nowadays is a well recognized reference for mathematicians working in the field of (abstract) degenerate equations.

Throughout the years he collaborated with more than 60 mathematicians from Algeria, France, Germany, India, Japan, Jordan, Israel, Italy, Romania, Russia, Turkey, Ukraine, United States. This underlines how the mathematical community recognizes Angelo Favini as a leading expert of PDE's.

His first paper was published in 1970 and was concerned with interpolation theory in topological vector spaces. After a series of papers on interpolation, Angelo Favini started to analyze (degenerate) abstract differential equations. The first paper on this subject was published in 1974, followed by more than 60 papers on direct, inverse and control problems for degenerate equations. According to MathSciNet the papers and books he wrote have been cited more than one thousand times!

Angelo Favini co-organized also several international conferences in Bologna, Cortona, Parma to which several mathematicians from Italy and from abroad participated in. I participated in some of these conferences and I had the pleasure to co-organize three conferences with him. This collaboration allowed me to get a better knowledge of Angelo Favini, which I met for the first time in 2004 when I was at the beginning of my career and Angelo proposed me to study a degenerate nonlinear equation. Already from the first contacts, I understood how deep is his knowledge of mathematics and I saw the enthusiasm he always put in studying new (challenging) problems. He always showed the enthusiasm in doing mathematics also during all the conferences he organized. These events had always been the occasion for Angelo of new collaborations and he also had fostered new collaborations among the participants.

Angelo Favini is member of the Editorial board of the following international mathematical journals:

- Abstract and Applied Analysis;
- Applicable Analysis;
- Bulletin of the South Ural State University. Series: Mathematical Modelling, Programming and Computer Software;
- Discrete and Continuous Dynamical Systems. Series S;
- International Journal of Applied and Experimental Mathematics;
- JCAAM;
- Scientiae Mathematicae Japonicae

and member of the "*Accademia delle Scienze dell'Istituto di Bologna*" a famous italian institution which, in the past had Marie Curie and Albert Einstein as members.

To anyone who have/had the pleasure to know and collaborate with him, this short (and not complete) description of his activity does not add any further information on Angelo. On the contrary, I hope that these few lines may help those who do not know him personally to get at least an idea of his talent for Mathematics, testified by the variety of problems he studied, and of his great passion for Mathematics.

## A List of Selected Publications

1. Favini A. Su un problema ai limiti per certe equazioni astratte del secondo ordine. *Rendiconti del Seminario Matematico della Università di Padova*, 1975, vol. 53, pp. 211–230.
2. Favini A., Yagi A. Multivalued Linear Operators and Degenerate Evolution Equations. *Annali di Matematica Pura ed Applicata*, 1993, vol. 163, no. 1, pp. 353–384. DOI: 10.1007/BF01759029
3. Favini A., Horn M.A., Lasiecka I., Tataru D. Global Existence, Uniqueness and Regularity of Solutions to a von Kármán System with Nonlinear Boundary Dissipation. *Differential Integral Equations*, 1996, vol. 9, no. 2, pp. 267–294.
4. Favini A., Yagi A. *Degenerate Differential Equations in Banach Spaces*. Monographs and Textbooks in Pure and Applied Mathematics. Vol. 215. N.Y, Marcel Dekker, Inc., 1999.
5. Favini A., Ruiz Goldstein G., Goldstein J.A., Romanelli S.  $C_0$ -Semigroups Generated by Second Order Differential Operators with General Wentzell Boundary Conditions. *Proceedings of the American Mathematical Society*, 2000, vol. 128, no. 7, pp. 1981–1989. DOI: 10.1090/S0002-9939-00-05486-1
6. Favini A., Ruiz Goldstein G., Goldstein J.A., Romanelli S. The Heat Equation with Generalized Wentzell Boundary Condition. *Journal of Evolution Equations*, 2002, vol. 2, no. 1, pp. 1–19. DOI: 10.1007/s00028-002-8077-y
7. Favini A., Lorenzi A. Identification Problems for Singular Integro-Differential Equations of Parabolic Type. II. *Nonlinear Analysis*, 2004, vol. 56, no. 6, pp. 879–904. DOI: 10.1016/j.na.2003.10.018
8. Favini A., Labbas R., Maingot S., Tanabe H., Yagi A. On the Solvability and the Maximal Regularity of Complete Abstract Differential Equations of Elliptic Type. *Funkcialaj Ekvacioj*, 2004, vol. 47, no. 3, pp. 423–452. DOI: 10.1619/fesi.47.423
9. Favini A., Ruiz Goldstein G., Goldstein J.A., Romanelli S. The Heat Equation with Nonlinear General Wentzell Boundary Condition. *Advances in Difference Equations*, 2006, vol. 11, no. 5, pp. 481–510.
10. Favini A., Shakhmurov V., Yakubov Y. Regular Boundary Value Problems for Complete Second Order Elliptic Differential-Operator Equations in *UMD* Banach Spaces. *Semigroup Forum*, 2009, vol. 79, no. 1, pp. 22–54. DOI: 10.1007/s00233-009-9138-0
11. Favini A., Marinoschi G. *Degenerate Nonlinear Diffusion Equations*. Lecture Notes in Mathematics. Vol. 2049. Heidelberg, Springer, 2012. DOI: 10.1007/978-3-642-28285-0

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