

Curriculum of Dario Benedetto

Born in 1966; Associate professor in Mathematical Physics (MAT/07) at Science Faculty - Mathematics Department of Sapienza Università di Roma.

Education and previous positions.

- 1990 Laurea degree in Mathematics, University of L'Aquila.
- From November 1992 researcher in Mathematical Physics, Science Faculty - Mathematics Department, University of L'Aquila.
- From April 1993 to July 1994 Second Lieutenant of the Technical Corps of Army at the Data Processing Center of Military Geographic Institute of Florence (IGMI)
- From July 1995 researcher at the Science Faculty - Mathematics Department of Sapienza Università di Roma
- From 2004 Associate Professor.
- 2013 Italian National scientific qualification as full professor in Mathematical Physics.

Research interests

- Synchronization phenomena in kinetic equations ([2], [1]).
- Mathematical methods for the analysis of data sequences: compression algorithms and entropy measures, relative entropy methods for sequences classification, application to texts and biological sequences ([4], [3], [5],[10], [9], [13], [7], [14] [20], [21], see also [8], [6]).
- Kinetic theory for quantum systems: rigorous derivation of kinetic equations with quantum cross section from the microscopic quantum dynamics ([11], [12], [15], [16], [18], [19], [38]).
- Kinetic theory from granular media: study of kinetic and hydrodynamic equations derived from inelastic microscopic dynamics ([17], [22], [24], [25], [27], [28], [31], [32], [39]).
- Fluid mechanics: study of the equation of incompressible fluids with singular initial data, such as vortex sheet, unbounded velocity fields, water bell, velocity, rings of vorticity ([23], [26], [29], [30], [33], [34], [35], [36], [37]).

Publications

- [1] D. Benedetto, E. Caglioti, U. Montemagno: *Dephasing of Kuramoto oscillators in kinetic regime towards a fixed asymptotically free state* preprint 2014
- [2] D. Benedetto, E. Caglioti, U. Montemagno: *On the complete phase synchronization for the Kuramoto model in the mean-field limit* arXiv:1407.6551, to appear on Comm. Math. Sci. (2015)
- [3] G. Maspero, D. Benedetto, M. Degli Esposti: *Who wrote Basil's Epistula 38? A Possible Answer through Quantitative Analysis* in J. Leemans - M. Cassin *Gregory of Nyssa's Contra Eunomium III*. Proceedings of the Twelfth International Gregory of Nyssa Colloquium (Leuven, 14-17 September 2010). In: J. Leemans, M. Cassin. *Gregory of Nyssa's Contra Eunomium III*. p. 579-594, Leiden: Brill, doi: 10.1163/9789004268258_022 (2014)
- [4] D. Benedetto, M. Degli Esposti, G. Maspero: *The puzzle of Basil's Epistula 38: a mathematical approach to a philological problem* Jour. Quantitative Linguistics, Volume 20, Issue 4, pp. 267-287 ISSN 0929-6174 DOI:10.1080/09296174.2013.830549 (2013)
- [5] D. Benedetto, M. Degli Esposti, G. Maspero: *Authorship attribution and small scales analysis applied to a real philological problem in greek patristics* Methods and Applications of Quantitative Linguistics - Selected papers of the 8th International Conference on Quantitative Linguistics (QUALICO) ISBN: 9788674664650 (2013)
- [6] D. Benedetto, E. Caglioti, M. Degli Esposti: *The Unreasonable Effectiveness of Mathematics in Human Sciences: The Attribution of Texts to Antonio Gramsci* In: Michele Emmer (editor). *Imagine Math - Between Culture and Mathematics*. p. 143-154, Milano:Springer-Verlag Italia, ISBN: 9788847024267, doi: 10.1007/978-88-470-2427-4 (2012)
- [7] D. Benedetto, E. Caglioti, G. Cristadoro, M. Degli Esposti: *Relative entropy via non-sequential recursive pair substitution* Jour. Stat. Mech. Theory and Exp. vol. 09, p. 1-15, ISSN: 1742-5468, doi: 10.1088/1742-5468/2010/09/P09010 (2010)
- [8] C. Basile, D. Benedetto, E. Caglioti, M. degli Esposti *L'attribuzione dei testi gramsciani: metodi e modelli matematici* La Matematica nella Società e nella Cultura, vol. III, p. 235-269, ISSN: 1972-7356 (2010)
- [9] C. Basile, D. Benedetto, E. Caglioti, M. Degli Esposti: *An example of mathematical authorship attribution* Jou. Math. Phys. vol. 49; p. 125211-125231, ISSN: 0022-2488 (2008)
- [10] C. Basile, D. Benedetto, E. Caglioti, G. Cristadoro, M. Degli Esposti: *A Plagiarism Detection Procedure in Three Steps: Selection, Matches and Squares* In: *Uncovering Plagiarism, Authorship and Social Software Misuse and 1st International Competition on Plagiarism Detection*. San Sebastian (Spain), 10 settembre 2009, AACHEN: CEUR workshop proceedings, vol. 502, p. 19-23, ISBN/ISSN: 1613-0073 (2009)
- [11] D. Benedetto, F. Castella, R. Esposito, M. Pulvirenti *From the N-body Schrödinger Equation to the Quantum Boltzmann Equation: a Term-by-Term Convergence Result in the Weak Coupling Regime*, Comm. Math. Phys. (ISSN: 0010-3616) 277, pp. 1-44 doi:10.1007/s00220-007-0347-7 (2008)
- [12] D. Benedetto, M. Pulvirenti *The Classical Limit for the Uehling-Uhlenbeck operator*, Bull. Inst. Math. Acad. Sin. (ISSN: 0304-9825) 2, No 4, pp. 907-920 (2007)
- [13] D. Benedetto, E. Caglioti, C. Cica *Compressing proteomes: the relevance of long range correlations*, Eur. Jour. Bioinf. Syst. Bio. (ISSN: 1687-4145) 1, pp. 1-8 doi:10.1155/2007/60723.
- [14] D. Benedetto, E. Caglioti, D. Gabrielli *Non-sequential recursive pair substitution: some rigorous results*, Jour. Stat. Mech. Theo. Exp. (ISSN: 1742-5468, on line) 09, pp. 1-21 doi:10.1088/1742-5468/2006/09/P09011 (2006)
- [15] D. Benedetto, F. Castella, R. Esposito, M. Pulvirenti *Some Considerations on the Derivation of the Nonlinear Quantum Boltzmann Equation II: The Low Density Regime*, Jour. Stat. Phys. (ISSN: 0022-4715) 124, pp. 951-996 doi:10.1007/s10955-005-9010-x (2006)
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- [22] D. Benedetto, M. Pulvirenti *On the one-dimensional Boltzmann equation for granular flows*, Math. Mod. Num. Anal. (ISSN: 0764-583X) 35 no. 5, pp. 899-906 (2001)
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- [35] D. Benedetto: *On the Navier-Stokes equation on \mathbb{R}^2* , Rendiconti di Matematica, Serie VII (ISSN: 1120-7183) 14, pp. 591–608 (1994)
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- [41] (Libro di testo) D. Benedetto, M. Degli Esposti, C. Maffei: *Matematica per le scienze della vita* II edizione Isbn 978-8808-28238-5, CEA Milano (2012)
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