UNIVERSITÀ DEGLI STUDI DI MILANO Procedura di selezione per la chiamata a professore di I fascia da ricoprire ai sensi dell'art. 18, commi 1 e 4, della Legge n. 240/2010 per il settore concorsuale 01-A3 (settore scientifico-disciplinare MAT 06- Probabilitá e Statistica Matematica) presso il Dipartimento di Matematica Federigo Enriques, Codice concorso 4664

CURRICULUM VITAE di Giuseppina Guatteri

Name: Giuseppina

Surname: Guatteri

Place and date of birth: Chiavari (GENOA, ITALY), 28.7.1972.

Personal data: married, two children

Affiliation: Politecnico di Milano

Address:
Politecnico di Milano,
Dipartimento di Matematica "F. Brioschi"
via Bonardi, 9
20133 Milano

phone: + 39 02 23994556

e-mail: giuseppina.guatteri@polimi.it

Education:

- November 2001: PhD in Mathematics at University of Trento
- July 1996: Degree in Mathematics at University of Pisa

Positions and leaves:

- 10/11/2001- 10/12/2001: Research Contract at University of Trento.

- 15/12/2001- 1/11/2002: Post-doc fellowship "Assegno di Ricerca" at Politecnico di Milano
- 2/11/2002- 12/03/2015: Assistant- at Politecnico di Milano, S.S.D. MAT 06 " Probabilità e Statistica Matematica".
- 18/09/2008-16/07/2009: maternity leave.
- 01/09/2009-12/01/2010: maternity leave.
- 26/01/2010-23/07/2010: maternity leave.
- 16/04/2012-30/05/2012: parental leave.
- 31/12/2013: Abilitation "S.C. 01/A3 ANALISI MATEMATICA, PROBABILITA' E STATISTICA MATEMATICA" Associate Professor
- 13/03/2015- **present**: Associate Professor at Politecnico di Milano, S.S.D. MAT 06 " Probabilità e Statistica Matematica".
- 16/01/2020: Abilitation "S.C. 01/A3 ANALISI MATEMATICA, PROBABILITA' E STATISTICA MATEMATICA". Full Professor

Fellowship and Visiting Periods

1. November 2000–Febraury 2001 and July 2001–August 2001: "Marie Curie visiting fellow" at Warwick University , U.K. , supervisor Prof. D. K. Elworthy.
2. Visiting reasercher at Laboratoire de Mathématiques, Université de Bretagne Occidentale, Brest, Francia, to collaborate with Prof. R. Buckdahn, in the following periods:
    - 18.01.2004-07.02.2004
    - 2.12.2004-22.12.2004 and 14.06.2005-19.06.2005
    - 19.03.2006-31.03.2006 and 23.04.2006-2.05.2006

Research projects

1. I partecipated in PRIN project cofounded by MURST titled "Equazioni di Kolmogorov", coordinated by Professor G. Da Prato, years: 2002-04, n. 2002018912.002.

2. I partecipated in PRIN project cofounded by MURST titled "Equazioni di Kolmogorov", coordinated by Professor G. Da Prato, years: 2004-06, n. 2004011518.004.

3. I partecipated in PRIN project cofounded by MURST titled "Equazioni di Kolmogorov", coordinated by Professor G. Da Prato, years: 2006-08, n. di 2006015719.004.

4. I partecipated in PRIN project cofounded by MURST titled "Metodi deterministici e stocastici nello studio di problemi di evoluzione", coordinated by Professor A. Lunardi, years: 2000-2010.

5. I partecipated in TMR project "Evolution equation for Deterministic and Stochastic Systems" HPRN-CT-2002-00281, coordinated by Professor Marc Quincampoix, Laboratoire de Mathematiques, Unité CNRS UMR 6205, Université de Bretagne Occidentale, Brest, France.

6. I partecipated in GNAMPA 2005 project "Equazioni differenziali stocastiche retrograde e applicazioni", coordinated by prof. M. Fuhrman.

7. I partecipate in Marie Curie Initial Training Network (ITN) project "Deterministic and Stochastic Controlled Systems and Applications" Call: FP7-PEOPLE-2007-1-1-ITN, no. 213841-2, coordinated by Professor A. Rascanu, Jasi University, Romania.

8. I coordinated Gnampa 2011 project "Metodi deterministici e stocastici nello studio di problemi di evoluzione".

9. I partecipated in PRIN project "Problemi differenziali di evoluzione: approcci deterministici e stocastici e loro interazioni", coordinated by M.Fuhrman, years 2010-2011.

10. I partecipate in Gnampa 2014 project "Equazioni differenziali stocastiche con memoria e applicazioni", coordinated by S. Federico.

11. I partecipate in Gnampa 2017 project " Sistemi stocastici singolari: buona posizione e problemi di controllo".

12. I partecipated in PRIN project " Deterministic and stochastic evolution equations ', coordinated by A. Lunardi years 2017-2020.

13. I partecipate in Gnampa 2018 project "Controllo ottimo stocastico con osservazione parziale:metodo di randomizzazione ed equazioni di Hamilton-Jacobi-Bellman sullo spazio di Wasserstein'.

TEACHING

1. A.A. 1997-1998: training course and exams for the course "Matematica Generale" Faculty of Economics, University of Trento, 100 hours contract.

2. A.A. 1998-1999: training course and exams for the course "Matematica Generale" Faculty of Economics, University of Trento, 100 hours contract.

3. A.A. 2000-2001: training course and exams for the course "Calcolo delle Probabilità e Statistica Matematica A" Faculty of Engineering, Politecnico di Milano, 20 hours of effective teaching.

4. A.A. 2001-2002: training course and exams for the course "Calcolo delle Probabilità e Statistica Matematica B" Faculty of Engineering, Politecnico di Milano, 20 hours of effective teaching.

5. A.A.2001-2002: training course and exams for the course "Calcolo delle Probabilità" Faculty of Engineering, Politecnico di Milano, 20 hours of effective teaching.

6. A.A. 2001-2002: laboratory with R of the course "Calcolo delle Probabilità" Faculty of Engineering, 12 hours of effective teaching.

7. A.A. 2002-2003: training course and exams for the course "Calcolo delle Probabilità e Statistica Matematica B" Faculty of Engineering, Politecnico di Milano, 20 hours of effective teaching.

8. A.A. 2002-2003: training course and exams for the course "Calcolo delle Probabilità" Faculty of Engineering, Politecnico di Milano, 20 hours of effective teaching.

9. A.A. 2002-2003: laboratory with R of the course "Calcolo delle Probabilità" Faculty of Engineering, 12 hours of effective teaching.

10. A.A. 2003-2004 : training course and exams for the course "Calcolo delle Probabilità" Faculty of Engineering, Politecnico di Milano, 20 hours of effective teaching.

11. A.A. 2003-2004: training course and exams for the course "Statistica" Faculty of Engineering, Politecnico di Milano, 20 hours of effective teaching.

12. A.A. 2004-2005: training course and exams for the course "Modelli stocastici e Simulazione" Faculty of Engineering, Politecnico di Milano, 20 hours of effective teaching.

13. A.A. 2004-2005: Course (lectures and training) “Calcolo delle Probabilità” Faculty of Engineering, Politecnico di Milano, 50 hours of effective teaching.

14. A.A. 2005-2006: Course “Calcolo delle Probabilità” Faculty of Engineering, Politecnico di Milano, 30 hours of effective teaching.

15. A.A. 2005-2006: training course and exams for the course “Calcolo delle Probabilità” Faculty of Engineering, Politecnico di Milano, 20 hours of effective teaching.

16. A.A. 2005-2006: training course and exams for the course ”Modelli stocastici e Simulazione ” Faculty of Engineering, Politecnico di Milano, 20 hours of effective teaching.

17. A.A. 2006-2007: Course (lectures and training) “Modelli stocastici e simulazione” , Faculty of Engineering, Politecnico di Milano, 42 hours of effective teaching.

18. A.A. 2006-2007: training course and exams for the course “Calcolo delle Probabilità” Faculty of Engineering, Politecnico di Milano, 20 hours of effective teaching.

19. A.A. 2007-2008: Course (lectures and training) “Modelli stocastici e simulazione”, Faculty of Engineering, Politecnico di Milano, 42 hours of effective teaching.

20. A.A. 2007-2008: training course and exams for the course “Calcolo delle Probabilità” Faculty of Engineering, Politecnico di Milano, 20 hours of effective teaching.

21. A.A. 2010-2011: Course (lectures and training) “Statistica” Faculty of Engineering, Politecnico di Milano, 30 hours of effective teaching.

22. A.A. 2011-2012: training course and exams for the course “Calcolo delle Probabilità” Faculty of Engineering, Politecnico di Milano, 40 hours of effective teaching.

23. A.A. 2012-2013: Course (lectures and training) “Statistica” Faculty of Engineering, Politecnico di Milano, 30 hours of effective teaching.

24. A.A. 2012-2013: training course and exams for the course ”Equazioni differenziali stocastiche”’, mandatory for the Major Study Plan in Mathematical Finance: 32 hours of effective teaching.

25. A.A. 2013-2014: Course “Equazioni differenziali stocastiche”, mandatory for the Major Study Plan in Mathematical Finance Faculty of Engineering, Politecnico di Milano, 48 hours of effective teaching.

26. A.A. 2014-2015: training course and exams for the course "Stochastic Differential Equations", mandatory for the Major Study Plan in Mathematical Finance: 32 hours of effective teaching.

27. A.A. 2014-2015: Course "Calcolo delle Probabilità e Statistica Matematica", first year course of "Ingegneria Gestionale", Politecnico di Milano, 60 hours of effective teaching.

28. A.A. 2015-2016: training course and exams for the course "Stochastic Differential Equations", mandatory for the Major Study Plan in Mathematical Finance: 32 hours of effective teaching.

29. A.A. 2015-2016: Course "Calcolo delle Probabilità e Statistica Matematica", first year course of "Ingegneria Gestionale", Politecnico di Milano, 60 hours of effective teaching.

30. A.A. 2016-2017: Course "Stochastic Differential Equations", mandatory for the Major Study Plan in Mathematical Finance: 48 hours of effective teaching.

31. A.A. 2016-2017: Course "Calcolo delle Probabilità e Statistica Matematica per l' Informatica", first year course of "Ingegneria Informatica", Politecnico di Milano, 60 hours of effective teaching.

32. A.A. 2017-2018: training course and exams for the course "Stochastic Differential Equations", mandatory for the Major Study Plan in Mathematical Finance: 32 hours of effective teaching.

33. A.A. 2017-2018: Course "Calcolo delle Probabilità e Statistica Matematica per l' Informatica", second year course of "Ingegneria Informatica", Politecnico di Milano, 60 hours of effective teaching.

34. A.A. 2018-2019: Course "Calcolo delle Probabilità e Statistica Matematica per l' Informatica", second year course of "Ingegneria Informatica", Politecnico di Milano, 60 hours of effective teaching.

35. A.A. 2018-19 Course "An introduction to deterministic and stochatsic control", Pdh programm in Mathematical Models And Methods in Engineering, Politecnico di Milano.

36. A.A. 2019-2020: Course "Probabilità, second year course of "Ingegneria Matematica", Politecnico di Milano, 60 hours of effective teaching.

37. A.A. 2021-2021: Course "Probabilità", second year course of "Ingegneria Matematica", Politecnico di Milano, 60 hours of effective teaching.

38. A.A. 2021-2021: Course "Probabilità e Statistica Matematica", first year course of "Ingegneria Gestionale", Politecnico di Milano, 30 hours of effective teaching.

Assigned Theses

- Degree Thesis, aa. 2006/2007, title: "Controllo ergodico di catene a stati finiti. Applicazione al problema della sostituzione dell' automobile. Ergodic control for Markov chains with finite state space. Application to the problem of replacing a car ".
- Master's Degree aa. 2013/2014, title: "Problema di controllo LQ a coefficienti stocastici: equazione di Riccati backward e sistema FBSDE. LQ control problem with stochastic coefficients: the backward Riccati equation and the FBSDE system."
- Master's Degree aa. 2015/2016, title: "Backward Stochastic Riccati Equation Driven by Wiener and Point Processes"
- Master's Degree aa. 2019/2020, title: "The Averaging Principle for Stochastic Differential Equations and a Financial Application"
- Phd Thesis aa. 2017-2019, title: "Hidden Markov Models for multivariate and functional data with applications to disease progression", co- advisor together with prof. A.M. Paganoni.
- Phd Thesis aa. 2020- present, tentative title: " Two scale stochastic problems in infinite dimensions", co- advisor together with prof. G. Tessitore.

Research themes and brief description of the results

- **Stochastic analysis**:
  - Zakai Equation: we prove well posedness of the equation on bounded domains using the so-called *stochastic characteristics* method.
  - Stochastic Schrödinger Equation: we represent rigorously the solution of some classes of the Belavkin equation using Feynman Integrals both on the state space and on the phase space.
  - Finite dimensional fully coupled for class of forward-backward SDEs: we prove four step scheme with irregular coefficients. Such scheme was introduced to exploit the connection of such system with the quasilinear Kolmogorov equation associated. The uniqueness result we obtained is new also in the analytic counterpart.

- FBSDE with value in a Hilbert space: we prove well posedness in small time interval for fully coupled FBSDE where the unknowns take value in infinite dimensional Hilbert spaces and we use such result to find existence of the optimal control for nonlinear control problems in infinite dimensions.

- **Stochastic control**:
  - LQ problem with stochastic coefficients in infinite dimensions: we consider the state equation with stochastic coefficients taking values in a Hilbert space. This leads to consider the Backward Stochastic Riccati Equation (BSRE) in the Banach space $L(H)$ where no stochastic calculus has been developed yet. So we introduce the notion of *strong solution* for the BSRE and we prove the synthesis of optimal control. Only very recently we proved also the existence for the mild solution.
  - BSRE in the finite dimensional case: we study the infinite horizon case and the ergodic case, proving the synthesis of optimal control in both cases. A detailed study of a particular class of backward equation, with irregular coefficients, is performed.
  - Stochastic Maximum Principle: by studying the adjoint backward equation we prove necessary conditions for optimality for a stochastic control problem for a class of SPDEs with boundary noise and boundary control Then, in a suitable situation where this condition is also sufficient, we prove existence of the optimal control solving the Hamiltonian system that happens to be a forward-backward system in infinite dimensions. We prove also necessary conditions for a state equation with delay introducing and studying a new class of *anticipated* FBSDEs taking values in a Hilbert space.
  - Ergodic problems and singular perturbation control problems. We study the asymptotic behavior of the value functions both for finite horizon stochastic control problems and for discounted infinite horizon control problems and investigate their relation with suitable stochastic ergodic control problems. We will refer to such limits as *ergodic limits*. We deal with ergodic limits for control problems in which the state process is allowed to take values in a general (possibly infinite dimensional) real separable Hilbert space and the diffusion coefficient is allowed to be degenerate. In the latter case, the degeneracy of the noise prevents the use of standard BSDEs techniques and we have to introduce to randomize the control. In the same direction we study an Ergodic Markovian BSDE involving a forward process X that solves an infinite dimensional forward stochastic evolution equation with multiplicative and possibly degenerate diffusion coefficient. A concavity

assumption on the driver allows us to avoid the typical quantitative conditions relating the dissipativity of the forward equation and the Lipschitz constant of the driver. Although the degeneracy of the noise has to be of a suitable type we can are able to handle relevant examples of ergodic control problems for SPDEs.

– We have also considered singular perturbation control problems for the following system of controlled stochastic differential equations:

$$\begin{cases} dX_t^{\varepsilon,\alpha} = AX_t^{\varepsilon,\alpha} + b(X_t^{\varepsilon,\alpha}, Q_t^{\varepsilon,\alpha}, \alpha_t)dt \ + RdW_t^1, & X_0 = x_0, \\ \varepsilon dQ_t^{\varepsilon,\alpha} = (BQ_t^{\varepsilon,\alpha} + F(X_t^{\varepsilon,\alpha}, Q_t^{\varepsilon,\alpha}))\, dt + G\rho(\alpha_t)dt + \varepsilon^{1/2} G\, dW_t^2, & Q_0 = q_0, \end{cases} \tag{1}$$

where both state components $X^{\varepsilon,\alpha}$ and $Q^{\varepsilon,\alpha}$ take values in an Hilbert space and we notice that the presence of the constant ε in the second equation corresponds to the fact that Q evolves with a speed which is larger by a factor $1/\varepsilon$ then the speed of evolution of the component X. In other words the above equation is a good model for a so called *two scale system*. The optimal control problem is then completed by a standard cost functional $J^\varepsilon(x_0, q_0, \alpha)$ and the associated value function

$$V^\varepsilon(x_0, q_0) := \inf_\alpha J^\varepsilon(x_0, q_0, \alpha), \tag{2}$$

Our purpose is to give a characterization of the limit of $V^\varepsilon(x_0, q_0)$ as ε (that is the ratio between the speed of slow and the quick evolution) converges to 0 using the BSDEs, that are a useful tool in particular in the infinite dimensional case. The we can extend our approach to system of the form:

$$\begin{cases} dX_t^{\varepsilon,\alpha} = AX_t^{\varepsilon,\alpha} + b(X_t^{\varepsilon,\alpha}, Q_t^{\varepsilon,\alpha}, \alpha_t)dt \ + RdW_t^1, & X_0 = x_0, \\ \varepsilon dQ_t^{\varepsilon,\alpha} = (BQ_t^{\varepsilon,\alpha} + F(X_t^{\varepsilon,\alpha}, Q_t^{\varepsilon,\alpha}))\, dt + G\rho(\alpha_t)dt + \varepsilon^{1/2} G\, dW_t^2, & Q_0 = q_0, \end{cases} \tag{3}$$

where the operator in front of the "slow" is allowed to be degenerate and of multiplicative type. To treat this class of problem we exploit the regularizing property of suitable auxiliary noises.

- **Hidden Markov Models** In collaboration with Anna Maria Paganoni, we have started to investigate the use of Hidden Markov Models for multivariate and functional data. This project is still at an early stage, but we have already followed a phd Thesis with an application of these models to disease progression, finding that such process seem to seize well the time evolution of the disease comparing with some other clustering methods already at hand in the literature.

Talks

1. 28.06.1998–04.07.1998 (Baden Wuttemberg, Germany) Workshop Internet Seminar 1997/98. Title of the talk : "Some properties of self-adjont operators".

2. 17.05.1999–19.05.1999 (Lisbona, Portugal) Workshop on Stochastic Evolution Equations. Title of talk "A variational approach to evolution problems with variable domains".

3. 06.07.2000–07.07.2000 (Bressanone, Italy) Convegno "Analysis and control of deterministic and stochastic evolution equations". Title of the talk: "SPDE's in bounded domains with Dirichlet boundary conditions".

4. 26.02.2001–03.03.2001 (Trento, Italy)Workshop "Some New Development of Stochastic Analysis and Application". Title of the talk: "Some remarks about the method of Stochastic Characteristics."

5. 26.07.2001–03.08.2001 (Warwick, UK) "Workshop on Stochastic Partial Differential Equations". Title of the talk: "Some remarks about SPDE's in bounded domains with Dirichlet boundary conditions."

6. 21.07.2003–25.07.2003 (Sophia-Antipolis, France) Conference "IFIP 2003". Title of the talk: "On the Stochastic Backward Riccati Equation in Infinite Dimensions".

7. 4.08.2003–15.08.2003 (Warwick, U.K.) Conference "Stochastic Partial Differential Equations and Related Topics". Title of the talk "On the Stochastic Backward Riccati Equation in Infinite Dimensions".

8. 17.10.2003–18.10.2003 (Pisa) Workshop "Two days on Kolmogorov Equations". Title of the talk: "Quasilinear parabolic equations in Hölder spaces and applications to forward-backward stochastic systems".

9. 3.02.2004 (Brest, France) Laboratoire de Mathematiques, Universitè de Bretagne Occidentale. Title of the talk:"Forward-backward stochastic systems with non Lipschitz final term".

10. 28.03.2005–1.04.2005(Iena, Germany) Conference "Stochastic Equations and Related Topics".Title of the talk "A stochastic Tykhonov Theorem in infinite dimensions".

11. 22.05.2005–25.05.2005 (Pisa, Italy) Workshop del TMR HPRN-CT-2002-00281 "Evolution Equations for Deterministic and Stochastic Systems". Title of the talk: "A stochastic Tykhonov Theorem".

12. 18.07.2005–22.07.2005 (Torino, Italy) Conference IFIP 2005. Title of the talk: "Infinite Horizon Stochastic L-Q Optimal Control with Random Coefficients and Backward Stochastic Riccati Equations".

13. 23.07.2006–29.07.2006 (Iena, Germany) Conference "Stochastic Equations and Related Topics II". Title of the talk: "Backward Stochastic Riccati Equations in infine dimensions and infinite horizon".

14. 1.11.2006–3.11.2006 (Parma, Italy) "Workshop on Kolmogorov Equations". Title of the talk: "Infinite horizon linear quadratic optimal control problems with random coefficients.".

15. 9.09.2007–14.09.2007 (La Londe, France) "Journées de Probabilités 2007". Title of the talk: "Backward stochastic Riccati equations in Hilbert spaces ."

16. 8.09.2010–10.09.2010 (Modena, Italy) "Kolmogorov Equations in Physics and Finance". Title of the talk: "Weak solutions of forward-backward systems".

17. 7.09.2011–9.09.2011 (Parma, Italy) "Deterministic and stochastic methods in evolution problems". Title of the talk: "A stochastic version of the Tichonov Theorem in infinite dimension."

18. 24.10.2011–28.10.2011 (Nice, France) "Contrôle, Imagerie et Probabilitès en Mediterranèe". Title of the talk:"Existence of optimal controls for Spdes with boundary control, via forward-backward systems."

19. 22.05.2013-24.05.2013 (Rennes, France) Workshop 3 on "Backward Stochastic Differential Equations". Title of the talk:"Operator Valued BSDEs: a mild formulation."

20. 6.01.2014-11.01.2014 (Levico, Italia) 9th meeting on "Stochastic Partial Differential Equations and Applications". Title of the talk: "Mild formulation of a Backward Stochastic Lyapunov Equation."

21. 22.06.2014-27.06.2014 (Weihai China) 7th International Symposium on BSDE, June 22-27, 2014. Shandong University.
Title of the talk: "Well Posedness of the Backward Stochastic Riccati Equation in Infinite Dimensional Spaces."

22. 3.07.2017-7.07.2017 (Edinburgh (UK)) Workshop on BSDEs, SPDEs and their Applications
Title of the talk:"Optimal control of two scale stochastic systems in infinite dimensions: the BSDE approach".

23. 3.07.2018-6.07.2018 14th Viennese Conference on Optimal Control and Dynamic Games
Title of the talk:"Optimal control of two scale stochastic systems in infinite dimensions using BSDE".

Organizing activity

1. Being part of the local organizing comitee of the workshop held at Politecnico di Milano, July 11-13, 2011, titled "Topics in Stochastic Control".

2. Being part of the local organizing comitee of the Summer School held at Università Milano Bicocca, June 27-July 8, 2011, titled "Stochastic Control and Related PDEs".

3. Being part of the local organizing comitee of the workshop held at Politecnico di Milano, April 13-14, 2015, titled "Control Theory and Related Topics".

4. Session organizer at "First Italian Meeting on Probability and Mathematical Statistics", June 19-22, 2017, Torino. Tiltle of the session: "Some Topics on Path-dependent Stochastic Equations".

5. Organizer of a "Meeting in honour of Luciano Tubaro", September 25, 2017, Trento.

6. Being part of the local organizing comitee of the RISM School held at Varese, "Developments in Stochastic Partial Differential Equations", July 23-27, 2018.

List of publications

1. S. Bonaccorsi and G. Guatteri. A variational approach to evolution problems with variable domains. *J. Differential Equations 175* (2001), no. 1, 51–70.

2. S. Bonaccorsi and G. Guatteri. Stochastic Partial Differential Equations in Bounded domains with Dirichlet Boundary Conditions. *Stoch. Stoch. Rep. 74* (2002), no. 1-2, 349–370.

3. S. Albeverio, G. Guatteri and S. Mazzucchi, Phase space Feynman path integrals. *J. Math. Phys.* 43 (2002), no. 6, 2847–2857

4. S. Albeverio, G. Guatteri and S. Mazzucchi. A representation of the Belavkin equation via Feynman path integrals. *Probab. Theory Related Fields* 125 (2003), no. 3, 365–380.

5. G. Guatteri and G. Tessitore. On the backward stochastic Riccati equation in infinite dimensions. *Siam J. of Control and Optim.* 44 (2005), No. 1, 159-194.

6. R. Buckdahn and G. Guatteri. A stochastic Tikhonov theorem in infinite dimensions. *Appl. Math. Optim.* 53 (2006), no. 2, 221–258.

7. F. Delarue and G. Guatteri, Weak existence and uniqueness for forward-backward SDEs. *Stochastic Process. Appl.* 116 (2006), no. 12, 1712–1742.

8. G. Guatteri. On a class of forward-backward stochastic differential systems in infinite dimensions. *J. Appl. Math. Stoch. Anal.* 2007, Article ID 42640, 33 pages doi:10.1155/2007/42640.

9. G. Guatteri and F. Masiero. Infinite Horizon and Ergodic Optimal Quadratic Control for an Affine Equation with Stochastic Coefficients, *Siam Journal of Control and Optimization, 48, (2009), no.3, 1600-1631.*

10. G. Guatteri and F. Masiero. Ergodic Optimal Quadratic Control for an Affine Equation with Stochastic and Stationary Coefficients. *Systems & Control Letters,* 58 (2009),n.3, 169–177.

11. G. Guatteri. Stochastic Maximum Principle for SPDEs with noise and control on the boundary. *Systems & Control Letters,* 60 (2011),n.3, 198–204.

12. G. Guatteri and F. Masiero. On the existence of optimal controls for SPDEs with boundary-noise and boundary-control. *Siam Journal of Control and Optimization,* 51 (2013), no. 3, 1909-1939.

13. S. Bonaccorsi and G. Guatteri. Classical solutions for SPDEs with Dirichlet boundary conditions. *Seminar on Stochastic Analysis, Random Fields and Applications, III (Ascona, 1999)*, 33–44, Progr. Probab., 52, Birkhauser, Basel, 2002.

14. G. Guatteri e H. Lisei. The stochastic characteristics method applied to a Stochastic Schroedinger equation. *Stochastic Anal. Appl.* 21 (2003), no. 4, 801–817.

15. S. Albeverio, G. Guatteri and S. Mazzucchi. A representation of the Belavkin equation via phase space Feynman path integrals. *Infin. Dimens. Anal. Quantum Probab. Relat. Top.* 7 (2004), no. 4, 507–526.

16. G. Guatteri and A. Lunardi. Smoothing of quasilinear parabolic operators and applications to forward-backward stochastic systems. *Adv. Differential Equations* 10 (2005), no. 1, 65–88.

17. G. Guatteri and G. Tessitore. Backward Stochastic Riccati Equations and Infinite Horizon L-Q Optimal Control with Infinite Dimensional State Space and Random Coefficients. *Appl. Math. Optim.* 57 (2008), no. 2, 207–235.

18. G. Guatteri and G. Tessitore. Well Posedness of Operator Valued Backward Stochastic Riccati Equations in Infinite Dimensional Spaces. *Siam Journal of Control and Optimization,* 52 (2014), No. 6, pp. 3776-3806.

19. G. Guatteri, F. Masiero and C. Orrieri. Stochastic maximum principle for SPDEs with delay. *Stochastic Process. Appl* 127, (2017), no.7, 2396–2427

20. F. Confortola, M. Fuhrman, G. Giuseppina and G.Tessitore. Linear-quadratic optimal control under non-Markovian switching. *Stoch. Anal. Appl.* 36, (2018), no.1, 166–180.

21. A. Cosso, G. Guatteri and G.Tessitore. Ergodic control of infinite-dimensional stochastic differential equations with degenerate noise. *ESAIM Control Optim. Calc. Var* 25, (2019), 1–19, DOI: 10.1051/cocv/2018056.

22. G. Guatteri and G. Tessitore. Singular Limit of BSDEs and Optimal Control of Two Scale Stochastic Systems in Infinite Dimensional Spaces. *Appl.Math. Optim.* (2019). DOI:10.1007/s00245-019-09577-y

23. G. Guatteri and G. Tessitore. Ergodic BSDES with multiplicative and degenerate noise. *Siam Journal on Control and Optimization* (2020). vol. 58, p. 2050-2077, ISSN: 1095-7138

24. A Martino, G. Guatteri and A. Paganoni. Multivariate Hidden Markov Models for disease progression. *Statistical Analysis & Data Mining* (2020), DOI:10.1016/j.spl.2020.108917.

25. A Martino, G. Guatteri and A. Paganoni. Hidden Markov Models for multivariate functional data. *Statistic & Probability Letters* DOI:10.1016/j.spl.2020.108917. pp.1-10. (2020)

26. G. Guatteri, F. Masiero. Stochastic maximum principle for problems with delay with dependence on the past through general measures *Mathematical Control and Related Fields.* DOI: http://dx.doi.org/10.3934/mcrf.2020048, pp. 1-27 (2021)

27. G. Guatteri and G. Tessitore. Singular Limit of Two Scale Stochastic Optimal Control Problems in Infinite Dimensions by Vanishing Noise Regularization **submitted** *to Siam Journal on Control and Optimization*

Regular Referee Activity for: Journal Of Mathematical Analysis and Applications, Stochastic Processes and Their Applications, Journal of Dynamical and Control Systems, Siam Journal of Control and Optimization, Nonlinear Analysis Series A: Theory, Method and Applications, Annales de l'Institut Henry Poincaré, Applied Mathematics and Optimization, System and Control Letters.

Milano, 6 luglio 2021