

Selected list of publications

Boualem Djehiche

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References

- [1] B. Djehiche (1992): Bernstein processes and spin-1/2 particles. *J. Math. Physics*, 33, (9), p. 3050-3059.
- [2] H. Andersson and B. Djehiche (1992): Multitype epidemics and Brownian sheets. Research Rep. 168. Inst. Actuar. Math. and Math. Stat. Stockholm University.
- [3] B. Djehiche (1993): A Large Deviation estimate for ruin probabilities. *Scand. Actuarial J.* (1), p. 42-59.
- [4] B. Djehiche (1993): Bernstein processes and Pauli-type equations. *J. Potential Analys.* 2, p. 349-370.
- [5] H. Andersson and B. Djehiche (1994): A functional limit theorem for the total cost of a multitype standard epidemic. *Adv. Appl. Prob.* 26, p. 690-697. (This is the published part of item 2)
- [6] H. Andersson and B. Djehiche (1995): Limit theorems for multitype epidemics. *Sto. Proc. Appl.* 56 (1995) p. 57-75.
- [7] B. Djehiche and I. Kaj (1995): The rate function of some Measure-Valued Jump Processes. *The Ann. of Proba.* Vol. 23, No 3, p. 1414-1438.
- [8] B. Djehiche and T. Kolsrud (1995): Canonical Transformations for Diffusions. *C. R. Acad. Sci. Paris. T. 321, Serie I*, p. 339-344.
- [9] H. Andersson and B. Djehiche (1997): Limit theorems for the total size of a spatial epidemic. *J. Appl. Prob.* 34, p. 698-710.
- [10] B. Djehiche and A. Schied (1998): Large deviations for hierarchical systems of interacting jump processes. *J. Theo. Prob.* Vol. 11, No. 1, p. 1-24.

- [11] H. Andersson and B. Djehiche (1998): A Threshold limit theorem for the stochastic logistic epidemic. *Adv. Applied Prob.* 35, p. 662-670.
- [12] B. Djehiche and I. Kaj (1999): A Sample Path Large Deviations Principle for L^2 -Martingale-Measure Processes. *Bull. Scien. Math.* 123, p. 467-499.
- [13] B. Djehiche and M. Eddahbi (1999): Large deviations for a stochastic Volterra-type equation in the Besov-Orlicz space. *Stoch. Proc. Appl.* 81, p. 39-72.
- [14] A. Berkaoui, B. Djehiche and Y. Ouknine (2001): Sur les grandes deviations en theorie de filtrage non lineaire. *Studia Mathematica*, Vol. 148, No. 1, pp. 5-21.
- [15] B. Djehiche and M. Eddahbi (2001): Hedging options in market models modulated by fractional Brownian motion. *Stochastic Analysis and Applications*, Vol. 19, No. 5, pp. 753-770.
- [16] A. Dermoune and B. Djehiche (2001): Pressure-less gas equations with viscosity and nonlinear diffusions. *C. R. Acad. Sci. Paris. t. 332, serie 1*, p. 745-750.
- [17] A. Dermoune and B. Djehiche (2002): Global solution of the pressure-less gas equations with viscosity. *Physica D*, Vol. 163/3-4, pp. 184-190.
- [18] B. Djehiche, M. Eddahbi and Y. Ouknine (2002): A logarithmic Sobolev inequality for one-dimensional multivalued stochastic differential equations. *Probability and Mathematical Statistics*, vol 22 (1), pp. 13-18.
- [19] P. Alaton, B. Djehiche and D. Stillberger (2002): On Modelling and Pricing Weather Derivatives. *Applied Mathematical Finance*. Volume 9, Number 1/March 01, pp. 1-20.
- [20] B. Djehiche and P. Hörfelt (2005): Standard approaches to asset and liability risk. (Invited paper) *Scandinavian Actuarial Journal*, (5), pp. 377-400.
- [21] S. Bahlali, B. Djehiche and B. Mezerdi (2006): Existence and optimality necessary conditions in relaxed control problems. *J. Appl. Math. Stoch. Analysis*, Art. ID 72762, 23 pp.
- [22] K. Bahlali, B. Djehiche and B. Mezerdi (2007): On the stochastic maximum principle in optimal control of degenerate diffusions with Lipschitz coefficients. *Appl. Math. and Optim.* Vol. 56(3), pp. 364-378.
- [23] A. Dermoune, B. Djehiche and N. Rahmania (2008): Consistent estimators of the smoothing parameter in the Hodrick-Prescott Filter. *J. Japan Statist. Soc.*, Vol. 38 (No. 2), pp. 225-241.

- [24] S. Bahlali, B. Djehiche and B. Mezerdi (2007): The relaxed stochastic maximum principle in singular optimal control of diffusions. *SIAM J. Control and Opt.* Vol. 46, No. 2, pp. 427-444
- [25] B. Djehiche and S. Hamadène (2009): On a finite horizon starting and stopping problem with risk of abandonment. *The International J. of Theoretical and Applied Finance (IJTAF)*, Vo. 12, No. 4, 523-543.
- [26] B. Djehiche and J. Svensson (2009): Large deviations for heavy-tailed factor models. *Statistics and Probability Letters* (79), pp. 304-311.
- [27] T. Arnarson, B. Djehiche, M. Poghosyan, H. Shahgholian (2009): A PDE approach to regularity of solutions to finite horizon optimal switching problems. *Nonlinear Analysis, Series A: Theory, Methods and Applications*, 71 (12), pp 6054-6067
- [28] A. Dermoune, B. Djehiche and N. Rahmania (2009): Multivariate Extension of the Hodrick-Prescott Filter- Optimality and Characterization. *Studies in Nonlinear Dynamics and Econometrics: Vol. 13: No.3*. <http://www.bepress.com/snede/vol13/iss3/art4>.
- [29] F. Chighoub, B. Djehiche and B. Mezerdi (2009): The stochastic maximum principle in optimal control of degenerate diffusions with non-smooth coefficients. *Random Operators and Stochastic Eqs.* 17, pp. 35-53.
- [30] K. Bahlali, F. Chighoub, B. Djehiche and B. Mezerdi (2009): Optimality necessary conditions in singular stochastic control problems with non-smooth coefficients. *J. Math. Anal. Appl.* 355 (2009), pp. 479-494.
- [31] R. Buckdahn, B. Djehiche, J. Li and S. Peng (2009): Mean-Field Backward Stochastic Differential Equations. A Limit Approach. *The Annals of Probability*, Vol. 37, No. 4, 1524-1565.
- [32] B. Djehiche, S. Hamadène and A. Popier (2009): A finite horizon optimal multiple switching problem. *SIAM J. Control and Optimization*, Volume 48, Issue 4, pp. 2751-2770.
- [33] B. Djehiche and A. Gioulekas (2009): Tail risk optimisation. *Insights/Q4 2009, IPM Informed Portfolio Management AB*, Stockholm.
- [34] B. Djehiche, S. Hamadène (preprint: arXiv:2004.11654, April 2020).. Hamadène and I. Hdhiri (2010): Stochastic Impulse Control for Non-Markovian Processes. *Applied Math. and Optimization*, 61(1), 1-26.
- [35] B. Djehiche and J. Rinnè (2010): Can Stocks Help Mend the Asset and Liability Mismatch? *Scandinavian Actuarial Journal*, 2: 148-160.
- [36] D. Andersson and B. Djehiche (2010): A maximum principle for relaxed stochastic control of linear SDE's with application to bond portfolio optimization. *Math. Methods in Operations Research*, 72(2), 273-310.

- [37] D. Andersson and B. Djehiche (2011): A maximum principle for stochastic control of SDE's of mean-field type. *Applied Math. and Optimization*, 63(3), 341-356.
- [38] B. Djehiche, S. Hamadène and M-A. Morlais (2011): Optimal stopping of expected profit and cost yields in an investment under uncertainty. *Stochastics*, 83(4-6), 431-448.
- [39] B. Djehiche, M. N'zi and J-M. Owo (2011): Stochastic viscosity solutions for SPDEs with continuous coefficients. *J. Math. Analys. and Applications*, 384(1), 63-69.
- [40] A. Dermoune, B. Djehiche and N. Rahmania (2011): Estimation of the smoothing parameters in the HPMV filter. *Analele Stiintifice ale Universitatii A. I. Cuza, Iasi, Sectiunea Matematica*, Vol. LVII, 61-75.
- [41] R. Buckdahn, B. Djehiche and J. Li (2011): A General Stochastic Maximum Principle for SDEs of Mean-field type. *Applied Math. and Optimization*, 64(2), 197-216.
- [42] B. Djehiche, M. Marcus and N. Rahmania (2011): On a Graduation Problem involving both the Hodrick-Prescott Filter and Optimal Spline Smoothing. *Far East J. Theoretical Statistics*, Vol. 36(1), 1-19.
- [43] B. Djehiche and N. Rahmania (2013): Modeling and estimating correlated growth and business cycles in a multivariate Hodrick-Prescott filter. *Far East J. Theoretical Statistics*, (42)1, 41-70.
- [44] H. Aro, B. Djehiche and B. Löfdahl (2015): Stochastic modelling of disability insurance in a multi-period framework. *Scandinavian Actuarial Journal*, (1), 88-106.
- [45] B. Djehiche, S. Hamadène and M-A. Morlais (2015): Viscosity solutions of systems of variational inequalities with interconnected bilateral obstacles. *Funkcialaj Ekvacioj*, 58, 135-175.
- [46] B. Djehiche and A. Hamdi (2014): A two-modes mean-field optimal switching for the full balance sheet. *International Journal of Stochastic Analysis*, Volume 2014 (2014), Article ID 159519.
- [47] B. Djehiche and A. Sandström (2014): 100 Years of the Scandinavian Actuarial Journal. In 'Modern Problems in Insurance Mathematics'. Edited by: D. Silvestrov and A. Martin-Löf, EAA series, Springer.
- [48] B. Djehiche and B. Löfdahl (2014): Risk aggregation and stochastic claims reserving in disability insurance. *Mathematics and Economics* 59 (2014), pp. 100-108.
- [49] B. Djehiche, H. Tembine and R. Tempone (2015): A Stochastic Maximum Principle for Risk-Sensitive Mean-Field Type Control. *IEEE Transactions on Automatic Control*. Vol 60(10), pp. 2640-2649.

- [50] B. Djehiche and H. Tembine (2015): Risk-Sensitive Mean-Field Type Control under Partial Observation. In *Stochastics in environmental and financial economics* (edited by F. E. Benth and G. Di Nunno), Springer Proceedings in Mathematics and Statistics.
- [51] B. Djehiche and A. Hamdi (2015): A full balance sheet two-modes optimal switching problem. *Stochastics and Stochastics Reports*, 87:4, 604-622, DOI: 10.1080/17442508.2014.991324.
- [52] B. Djehiche and M. Huang (2016): A characterization of sub-game perfect equilibria for SDEs of mean field type. *Dynamic Games and Applications*. March 2016, Volume 6, Issue 1, pp 55-81.
- [53] B. Djehiche and B. Löfdahl (2016): Aggregation of one-year risks in life and disability insurance. *Annals of Actuarial Science*, 10(02), pp.203-221.
- [54] B. Djehiche and H. Nassar (2016): A Functional Hodrick-Prescott Filter. *Journal of Inverse and Ill-Posed Problems (JIIP)*, Vol. 25, no 2, p. 135-148, DeGruyter DOI: 10.1515/jiip-2015-0111.
- [55] B. Djehiche, A. Hilbert and H. Nassar (2016): On the functional Hodrick-Prescott filter with non-compact operators. *Random Operators and Stochastic Equations*. Volume 24, Issue 1, Pages 33-42, February 2016.
- [56] B. Djehiche and B. Löfdahl (2016): Nonlinear reserving in life insurance: aggregation and mean-field approximation. *Insurance: Mathematics and Economics* 69 (2016): 1-13.
- [57] B. Djehiche, S. Hamadène, M-A. Morlais and Xuzhe Zhao (2017): On the Equality of Solutions of Max-Min and Min-Max Systems of Variational Inequalities with Interconnected Bilateral Obstacles. *J. Math. Anal. Appl.* 452(1), 148-175.
- [58] B. Djehiche, A. Tcheukam and H. Tembine (2017): A Mean-Field Game of Evacuation in Multi-Level Building. *IEEE Transactions on Automatic Control*, 62(10), pp. 5154-5169.
- [59] B. Djehiche, A. Tcheukam and H. Tembine (2017): Mean-Field-Type Games in Engineering. *AIMS Electronics and Electrical Engineering*, 2017, 1(1): 18-73 (open access journal).
- [60] B. Djehiche and B. Löfdahl (2018): A hidden Markov approach to disability insurance. *North American Actuarial Journal*, 22:1, 119-136, DOI: 10.1080/10920277.2017.1387570.
- [61] A. Aurell and B. Djehiche (2018): Mean-field type modeling of nonlocal crowd aversion in pedestrian crowd dynamics. *SIAM Journal of Control and Optimization*, 56(1), 434-455.

- [62] B. Djehiche and S. Hamadène (2018): Optimal control and zero-sum stochastic differential game problems of mean-field type. *Applied Mathematics & Optimization*(2020) 81:933-960. DOI 10.1007/s00245-018-9525-6
- [63] B. Djehiche, J. Barrieró-Gomez, H. Tembine (2019): Price dynamics for electricity in smart grid via mean-field-type games. Chapter 3 (pp. 45-64) in: *Beyond Traditional Probabilistic Methods in Economics*. Editors: Vladik Kreinovich, Nguyen Duc Trung, and Nguyen Ngoc Thach. Series Title: *Studies in Computational Intelligence* (809), Springer (2019).
- [64] S. Choutri, B. Djehiche and H. Tembine (2019): Optimal Control and Zero-Sum Games for Markov Chains of Mean-Field Type. *Mathematical Control & Related Fields* vol. 9(3), September 2019.
- [65] S. Choutri and B. Djehiche (2019): Mean-field risk sensitive control and zero-sum games for Markov chains. *Bull. Sci. math.* 152 (2019) 1-39.
- [66] A. Aurell and B. Djehiche (2019): Modeling tagged pedestrian motion: a mean-field type game approach. *Transportation Research Part B: Methodological*, 121, pp 168-183.
- [67] X. Wang, B. Djehiche, X. Hu (2019): Credit rating analysis based on the network of trading information". *Journal of Network Theory in Finance (Risk journals)* 5(1), pp 47-65 (July 2019).
- [68] J. Barreiro-Gomez, B. Djehiche and H. Tembine (2020): Price Dynamics for Electricity in Smart Grid Via Mean-Field-Type Games. *Dynamic Games and Applications (DGAA)* <https://doi.org/10.1007/s13235-020-00367-8>
- [69] A. Bensoussan, B. Djehiche, H. Tembine and P. Yam (2020): Mean-Field-Type games with jump and regime switching. *Dynamic Games and Applications* (2020) 10:19-57 <https://doi.org/10.1007/s13235-019-00306-2>.
- [70] M-K. Dao and B. Djehiche (2020): Hamilton-Jacobi equations for optimal control on multidimensional junctions with entry costs. *Nonlinear Differ. Equ. Appl. (NDEA)* 27, Article number: 23 (2020). <https://doi.org/10.1007/s00030-020-0625-z>
- [71] A. Aurell and B. Djehiche (2020): Behavior near walls in the mean field approach to crowd motion. *SIAM J. Appl. Math.*, 80(3), 1153-1174.
- [72] Y. Li, X. Wang, B. Djehiche, X. Hu (2020): Credit Scoring by Incorporating Dynamic Network Information. *European Journal of Operational Research* (DOI: <https://doi.org/10.1016/j.ejor.2020.03.078>). Volume 286, Issue 3, 1 November 2020, Pages 1103-1112.

- [73] M. C. Christiansen and B. Djehiche (2020): Nonlinear reserving and multiple contract modifications in life insurance. *Insurance: Mathematics and Economics* 93 (2020) 187-195.
- [74] X. Wang, M. Hu, Y. Zhao and B. Djehiche (2020): Credit Scoring Based on the Set-Valued Identification Method *Journal of Systems Science and Complexity*. Pub Date: 2020-04-17, DOI: 10.1007/s11424-020-9101-4
- [75] B. Bouchard, B. Djehiche and I. Kharroubi (2020): Quenched mass transport of particles towards a target. *Journal of Optimization Theory and Applications*. DOI: 10.1007/s10957-020-01704-y
- [76] B. Djehiche, O. Mazhar and C. Rojas (2020): Finite impulse response models: A non-asymptotic analysis of the least squares estimator. *Bernoulli* 27(2), 2021, 976-1000
- [77] Y. Chen, B. Djehiche and S. Hamadène (2021): Mean-field backward-forward stochastic differential equations and nonzero sum stochastic differential games. *Stochastics and Dynamics*, Vol. 21, No. 6 (2021) 2150036. DOI: 10.1142/S0219493721500362.
- [78] B. Djehiche, S. Hamadene, I. Hdhiri, H. Zaatra (2021): Infinite Horizon Stochastic Impulse Control with Delay and Random Coefficients (preprint: arXiv:1904.11924). *Mathematics of Operations Research (MOR)* <https://doi.org/10.1287/moor.2021.1145>)
- [79] B. Djehiche, R. Elie and S. Hamadène (2019): Mean-field reflected backward stochastic differential equations (preprint: arXiv:1911.06079, November 2019). To appear in *Annals of Applied Probability*.
- [80] N. Agram, B. Djehiche (2021): Reflected Backward Stochastic Volterra Integral Equations and related time-inconsistent optimal stopping problems. *Systems & Control Letters* 155 (2021) 104989.
- [81] B. Djehiche and B. Löfdahl (2021): Quantum support vector regression for disability insurance. *Risks* 2021, 9(12), 216; <https://doi.org/10.3390/risks9120216>
- [82] B. Djehiche, F. Gozzi, G. Zanco, M. Zanella (2021): Optimal portfolio choice with path dependent benchmarked labor income: a mean field model (Preprint: arXiv:2009.03922, September 2020) To appear in *Stochastic Processes and Their Applications (SPA)*.
- [83] B. Djehiche, H. Hult and P. Nyquist (2021): Importance sampling for a simple Markovian intensity model using subsolutions. To appear in *Transactions on Modeling and Computer Simulation (TOMACS)*.

Conference Proceedings (refereed)

- A. Tcheukam, B. Djehiche and H. Tembine (2016): Evacuation of Multi-Level Building: Design, Control and Strategic Flow. Proceedings of the 35th Chinese Control Conference July 27-29, 2016, Chengdu, China.
- A. Bensoussan, B. Djehiche, H. Tembine and Ph. Yam (2017): Risk-Sensitive Mean-Field-Type Control. Proceedings of the 56th IEEE Conference on Decision and Control December 12-15, 2017, Melbourne Convention Center, Melbourne, Australia.
- J. Barreiro-Gomez, B. Djehiche and H. Tembine (2018): Electricity Price Dynamics in the Smart Grid: A Mean-Field-Type Game Perspective. 23rd International Symposium on Mathematical Theory of Networks and Systems Hong Kong University of Science and Technology, Hong Kong, July 16-20, 2018.
- J. Barreiro-Gomez, B. Djehiche, T. E. Duncan, B. Pasik-Duncan, H. Tembine (2019): Fractional Mean-Field-Type Games under Non-Quadratic Costs: A Direct Method. Proceedings of the 2019 IEEE Conference on Decision and Control (CDC).
- J. Barreiro-Gomez, S. Choutri, B. Djehiche, Z. Frihi, H. Tembine (2020): Stackelberg Mean-Field-Type Games with Polynomial Cost. Proceedings of the 21st IFAC World Congress in Berlin, Germany, July 12-17, 2020.

Manuscripts and preprints

- C. Carlemalm and B. Djehiche (1996): On the problem of blind deconvolution using a stochastic differential calculus approach. Trita-Mat-1996-MS-06. Dept of Math. The Royal Institute of Technology.
- B. Djehiche (2004): Some remarks on the valuation of insurance contracts and related strategic asset allocation. Internal report, Skandia Liv, Stockholm.
- B. Djehiche and A. Gioulekas (2005): How to combine strategies while keeping draw downs at a minimum. Internal report, IPM Informed Portfolio Management, Ltd.

- A. de Ridder and B. Djehiche (2007): Extreme Day Returns: Evidence from Sweden (Preprint).
- Y. Bineau, B. Djehiche and N. Rahmania (2009): A new multivariate approach for measuring equilibrium models: Application to US data.
- B. Djehiche, H. Hult and P. Nyquist (2014): Min-max representations of viscosity solutions of Hamilton-Jacobi equations and applications in rare-event simulation. Preprint. arXiv:1406.3605.
- B. Djehiche and P. Helgesson (2014): The Principal-Agent Problem; A Stochastic Maximum Principle Approach. Preprint. arXiv:1410.6392v2.
- B. Djehiche and H. Tembine (2014): On the Solvability of Risk-Sensitive Linear-Quadratic Mean-Field Games. Preprint. arXiv:1412.0037.
- B. Djehiche and P. Helgesson (2015): The Principal-Agent problem with time inconsistent utility functions. Preprint. arXiv:1503.05416.
- A. Bensoussan, B. Djehiche, H. Tembine and P. Yam (2017): Risk-Sensitive Mean-Field-Type Control (preprint: arXiv:1702.01369, February 2017).
- B. Djehiche and O. Mazhar (2021): Non asymptotic estimation lower bounds for LTI state space models with Cramr-Rao and van Trees. Preprint: arXiv:2109.08582, September 2021.

Lecture Notes

- H. Andersson and B. Djehiche (1997): An Introduction To Martingale Theory. Lecture Notes. Inst. Actuar. Math. and Math. Stat. Stockholm University.
- B. Djehiche (2000): Stochastic calculus. An introduction with applications. Lecture Notes. Dept. Math. The Royal Institute of Technology.
- B. Djehiche (2000): Extremes. An overview with applications.
- A. Dermoune and B. Djehiche (2001): A probabilistic family of solutions of the pressure-less gas equations. Preprint, Université de Lille, France.

- B. Djehiche (2012): The stochastic maximum principle. An introduction with applications.
- B. Djehiche and R. Tempone (2014): Quantitative Risk Analysis. A Short Introduction Towards Engineering Applications.