

# Publications

## of

### Francesca Maggioni

#### Articles in International Journals with Peer-Review Process Indexed in Scopus and/or Web of Science

- [1] Maggioni, F. & Ricca, R.L. (2006) Writhing and coiling of closed filaments. *Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences*, **462**, 3151–3166, ISSN: 1471-2946, doi: 10.1098/rspa.2006.1719.
- [2] Maggioni, F. (2007) Cinematiche di filamenti elastici e rilassamento magnetico di tubi di flusso. *Bollettino U.M.I. La Matematica nella Società e nella Cultura*, Serie VIII, Vol. X-A, Agosto 2007, 267–270, ISSN: 0392-4033.
- [3] Ricca, R.L. & Maggioni, F. (2008) Multiple folding and packing for DNA modeling. *Computers and Mathematics with Applications*, **55**, 1044–1053, ISSN: 0898-1221, doi: 10.1016/j.camwa.2006.12.084.
- [4] Maggioni, F., Vespucci, M.T., Allevi, E., Bertocchi, M.I. & Innorta, M. (2008) A two-stage stochastic optimization model for a gas sale retailer. *Kybernetika*, **44**(2), 277–296, ISSN: 0023-5954.
- [5] Maggioni, F., Kaut, M. & Bertazzi, L. (2009) Stochastic optimization models for a single-sink transportation problem. *Computational Management Science*, **6**(2), 251–267, ISSN: 1619-697X, doi: 10.1007/s10287-008-0086-z.
- [6] Maggioni, F., Alamri, S., Barenghi, C.F. & Ricca R.L. (2009) Kinetic energy of vortex knots and unknots. *Il Nuovo Cimento C*, **32**(1), 133–142, ISSN: 2037-4909, doi: 10.1393/ncc/i2009-10351-6.
- [7] Maggioni, F., Potra, F.A., Bertocchi, M.I. & Allevi, E. (2009) Stochastic second-order cone programming in mobile ad hoc networks. *Journal of Optimization Theory and Applications*, **143**, 309–328, ISSN: 0022-3239, doi: 10.1007/s10957-009-9561-0.
- [8] Maggioni, F. & Ricca R.L. (2009) On the groundstate energy of knotted magnetic flux tubes. *Proceeding of the Royal Society of London. Series A*, **465**(2109), 2761–2783, ISSN: 1364-5021, doi: 10.1098/rspa.2008.0536.
- [9] Maggioni, F., Bertocchi M., Vespucci M.T., Giacometti R., Innorta M. & Allevi E. (2010) A stochastic optimization model for gas retail with temperature scenarios and oil price parameters. *Ima Journal of Management Mathematics*, **21**, 149–163, ISSN: 1471-678X, doi: 10.1093/imaman/dpp011.

- [10] Maggioni, F., Alamri, S., Barenghi, C.F. & Ricca R.L. (2010) Velocity, energy, and helicity of vortex knots and unknots. *Physical Review E, Statistical, Nonlinear, and Soft Matter Physics*, **82**(2), 026309–026317, ISSN: 1539-3755, doi: 10.1103/PhysRevE.82.026309 (Selected for the September 2010 issue of *Virtual Journal of Atomic Quantum Fluids; Section: Topological excitations of quantum fluids*).
- [11] Maggioni, F. & Wallace, S.W. (2012) Analyzing the quality of the expected value solution in stochastic programming. *Annals of Operations Research*, **200**(1), 37–54, ISSN: 0254-5330, doi: 10.1007/s10479-010-0807-x.
- [12] Vespucci, M.T., Maggioni, F., Bertocchi, M.I. & Innorta, M. (2012) A stochastic model for the daily coordination of pumped storage hydro plants and wind power plants. *Annals of Operations Research*, **193**(1), 91–105, ISSN: 0254-5330, doi: 10.1007/s10479-010-0756-4.
- [13] Maggioni, F., Potra, F. & Bertocchi, M. (2013) Optimal kinematics of a looped filament. *Journal of Optimization Theory and Applications*, **159**, 489–506, ISSN: 0022-3239, doi: 10.1007/s10957-013-0330-8.
- [14] Maggioni, F., Alamri, S., Barenghi, C.F. & Ricca R.L. (2013) Vortex knots dynamics in Euler fluids. *Procedia IUTAM*, Elsevier, **7**, 29–38, ISSN: 2210-9838, doi: 10.1016/j.piutam.2013.03.005.
- [15] Maggioni, F., Allevi, E. & Bertocchi, M. (2014) Bounds in multistage linear stochastic programming. *Journal of Optimization Theory and Applications*, **163**(1), 200–229, ISSN: 0022-3239, doi: 10.1007/s10957-013-0450-1.
- [16] Al-Baali, M., Spedicato, E.G. & Maggioni, F. (2014) Broyden’s quasi-Newton methods for a nonlinear system of equations and unconstrained optimization: a review and open problems. *Optimization, Methods and Software*, **29**(5), 937–954, ISSN: 1055-6788, doi: 10.1080/10556788.2013.856909.
- [17] Maggioni, F., Bertocchi, M., Mosca, E., Reinbold, R. & Zucchi, I. (2014) Geometric and computational models of chromatin fibre folding for human embryonic stem cells. *Procedia Social and Behavioral Sciences*, **108**, 296–305, ISSN: 1877-0428, doi: 10.1016/j.sbspro.2013.12.839.
- [18] Bertazzi, L. & Maggioni, F. (2014) The stochastic capacitated traveling salesmen location problem: a computational comparison for a United States instance. *Procedia Social and Behavioral Sciences*, **108**, 47–56, ISSN: 1877-0428, doi: 10.1016/j.sbspro.2013.12.819.
- [19] Ricca, R.L. & Maggioni, F. (2014) On the groundstate energy spectrum of magnetic knots and links. *Journal of Physics A: Mathematical and Theoretical*, **47**(20), 205501–205509, ISSN: 1751-8113, doi: 10.1088/1751-8113/47/20/205501.
- [20] Maggioni, F., Perboli, G. & Tadei, R. (2014) The Multi-path traveling salesman problem with stochastic travel costs: building realistic instances for city logistics applications. *Transportation Research Procedia*. **3**, 528–536, ISSN: 2352-1465, doi: 10.1016/j.trpro.2014.10.001.
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- [22] Alzalg, B., Maggioni, F. & Vitali, S. (2016) Homogeneous self-dual methods for symmetric cones under uncertainty. *Far East Journal of Mathematical Sciences: FJMS*, **99**(11), 1603–1632, ISSN: 0972-0871, doi: 10.17654/MS099111603.
- [23] Maggioni, F. & Pflug, G. (2016) Bounds and approximations for multistage stochastic programs. *Siam Journal on Optimization*, **26**(1), 831–855, ISSN: 1095-7189, doi: 10.1137/140971889.
- [24] Maggioni, F., Allevi, E. & Bertocchi, M. (2016) Monotonic bounds in multistage mixed-integer stochastic programming. *Computational Management Science*, **13**(3), 423–457, ISSN: 1619-697X, doi: 10.1007/s10287-016-0254-5.
- [25] Perboli, G., Gobbato, L. & Maggioni, F. (2017) A progressive hedging method for the multi-path travelling salesman problem with stochastic travel times. *IMA Journal of Management Mathematics*, **28**(1), 65–86, ISSN: 1471-6798, doi: 10.1093/imaman/dpv024.
- [26] Maggioni, F., Potra, F.A. & Bertocchi, M. (2017) A scenario-based framework for supply planning under uncertainty: stochastic programming versus robust optimization approaches. *Computational Management Science*, **14**(5), 5–44, ISSN: 1619-6988, doi: 10.1007/s10287-016-0272-3.
- [27] Alonso-Ayuso, A. & Maggioni, F. (2017) Special issue on the 13th international conference on computational management science. *Computational Management Science*, **14**(4), 461–463, ISSN: 1619-697X, doi: 10.1007/s10287-017-0292-7.
- [28] Bertazzi, L. & Maggioni, F. (2018) A stochastic multi-stage fixed charge transportation problem: worst-case analysis of the rolling horizon approach. *European Journal of Operational Research*, **267**(2), 555–569, ISSN: 0377-2217, doi: 10.1016/j.ejor.2017.12.004.
- [29] Crainic, G.T., Maggioni, F., Perboli, G. & Rei, W. (2018) Reduced cost-based variable fixing in two-stage stochastic programming. *Annals of Operations Research*, 1–37 ISSN: 0254-5330, doi: 10.1007/s10479-018-2942-8.
- [30] Kabašinskas, A., Maggioni, F., Štutienė, K. & Valakevičius, E. (2018) A multistage risk-averse stochastic programming model for personal savings accrual: the evidence from Lithuania. *Annals of Operations Research*, 1–28, ISSN: 0254-5330, doi: 10.1007/s10479-018-3100-z.
- [31] Gambella, C. Maggioni, F. & Vigo, D. (2019) A stochastic programming model for a tactical solid waste management problem. *European Journal of Operational Research*, **273**(2), 684–694, ISSN: 0377-2217, doi: 10.1016/j.ejor.2018.08.005.
- [32] Maggioni, F., Cagnolari, M., Bertazzi, L. & Wallace, SW. (2019) Stochastic optimization models for a bike-sharing problem with transshipment. *European Journal of Operational Research*, **276**(1), 272–283, ISSN: 0377-2217, doi: 10.1016/j.ejor.2018.12.031.
- [33] Maggioni, F. & Pflug, G. (2019) Guaranteed bounds for general non-discrete multistage risk-averse stochastic optimization programs. *Siam Journal on Optimization*, **29**(1), 454–483, ISSN: 1095-7189, doi: 10.1137/17M1140601.

- [34] Maggioni, F., Allevi, E. & Tomasgard, A. (2019) Bounds for multi-horizon stochastic programs. *Annals of Operations Research*, DOI: 10.1007/s10479-019-03244-9.

### Book Chapters

- [34] Maggioni, F., Bertocchi, M., Allevi, E., Potra, F.A. & Wallace, S.W. (2013) Stochastic second-order cone programming in mobile ad-hoc networks: sensitivity to input parameters. In *Stochastic Programming, Applications in Finance, Energy and Logistics* (H.I. Gassmann, S.W. Wallace, W.T. Ziemba eds), World Scientific, ISBN: 978-981-4407-50-2, chapter 17, 467–486.
- [35] Ricca, R.L. & Maggioni, F. (2018) Groundstate energy spectra of knots and links: magnetic versus bending energy. In *New Directions in Geometric and Applied Knot Theory*, (S. Blatt, P. Reiter and A. Schikorra eds), OM Measure Theory, De Gruyter, Basel ISBN: 9783110571486, 276–288.
- [36] Bertazzi, L. & Maggioni, F. (2019) Forecasting methods and optimization models for the inventory management of perishable products: the case of “La Centrale del Latte di Vicenza SpA”. In *AIRO Springer Series on Applications 2019* (M. Dell’Amico, M. Gaudio, G. Stecca eds), forthcoming.

### Articles in Proceedings of International Conferences with Peer-Review Process Indexed in Scopus and/or Web of Science

- [37] Maggioni, F. & Ricca, R.L. (2006) Twist and fold modelling of supercoiled filaments. *Proc. 5<sup>th</sup> Int. Conf. Aplimat 2006 Bratislava*, Slovakia, Part II, 123–130, ISBN: 809673055X; 978-809673055-1.
- [38] Maggioni, F., Wallace, S.W., Bertocchi, M. & Allevi, E. (2010) Sensitivity analysis in stochastic second order cone programming for mobile ad hoc networks. In: *Proceedings of the 6th International Conference on Sensitivity Analysis of Model Output, SAMO 2010. Procedia Social and Behavioral Sciences*, **2**(5), 7704–7705, Elsevier, ISSN: 1877-0428, Milan; Italy, 19 - 22 July 2010, doi: 10.1016/j.sbspro.2010.05.188.
- [39] Maggioni, F. & Allevi, E. (2017) Bounding multistage stochastic programs: a scenario tree based approach. *Lecture Notes in Computer Science, ODS2017 International Conference on Optimization and Decision Science: Methodologies and Applications*, Springer Proceedings in Mathematics & Statistics, **217**, 403–411, ISBN: 9783319673080.

### Articles in Proceedings of International Conferences with Peer-Review Process

- [40] Maggioni, F., Vespucchi, M.T., Allevi, E., Bertocchi, M.I. & Innorta, M. (2007) A gas retail stochastic optimization model by mean reverting temperature scenarios. *Communications to SIMAI Congress, on-line*, **2**, 1–10, ISSN 1827-9015, doi: 10.1685/CSC06162.
- [41] Maggioni, F. & Ricca, R.L. (2008) DNA supercoiling modeling of nucleosome and viral spooling. *PAMM, Proceedings 6th International Congress on Industrial and Applied Mathematics, Zurich 2007*, **7**(1), 2120011–2120012, doi: 10.1002/pamm.200700421.

- [42] Ricca, R.L. & Maggioni, F. (2008) A new stretch-twist-fold model for fast dynamo. *PAMM, Proceedings 6th International Congress on Industrial and Applied Mathematics, Zurich 2007*, **7**,(1), 2100051–2100052. doi: 10.1002/pamm.200700522.
- [43] Maggioni, F., Allevi, E. & Bertocchi, M. (2012) The value of information in multistage linear stochastic programming. Proceeding of the Special Workshop of Stochastic Programming Community (STOPROG-2012) Stochastic Programming for Implementation. ISBN 978-609-95241-4-6 (L. Sakalauskas, A. Tomaszgard, S.W. Wallace eds) Proceedings. Vilnius, 78–82, doi: 10.5200/stoprog.2012.14.
- [44] Kabašinskas, A., Štutienė, K. Valakevičius, E. & Maggioni, F. (2014) Stochastic programming framework for Lithuanian pension payout modelling. *Croatian Operational Research Review*, **5**(2), 387–399, ISSN 1849-5141, doi: 10.17535/crorr.2014.0021.
- [45] Cavagnini, R., Bertazzi, L. & Maggioni, F. (2018) A two-stage stochastic model for distribution logistics with transshipment and backordering: stochastic versus deterministic solutions. (P. Daniele and L. Scrimali eds) *New Trends in Emerging Complex Real Life Problems*, AIRO Springer Series 1, **1**, 131–140, doi: 10.1007/978-3-030-00473-6-15.

#### Articles in Italian Journals or Books

- [46] Bertocchi, M., Maggioni, F., Innorta, M., Vespucci, M.T., Allevi, E., Gambarini, S. & Nicolini, S. (2008) La vendita al dettaglio del gas nel mercato liberalizzato: un modello di ottimizzazione stocastica. *Matematica e Impresa*, **1**, 16.
- [47] Bertocchi, M., Maggioni, F., Allevi, E., Vespucci, M.T., Innorta, M. & Gambarini, S. (2008) Un modello stocastico per la vendita al dettaglio del gas. In *Scienza delle decisioni in Italia: applicazioni della ricerca operativa a problemi aziendali*, Ed. Felici G. and Sciomachen A., Genova ECIG, ISBN: 9788875441500, 105–116.
- [48] Allevi, E. & Maggioni, F. (2010) chapter 2: Proprietà base e teoria della programmazione stocastica lineare and chapter 3 Il metodo L-Shaped. In *Programmazione stocastica e applicazioni* by J. Abaffy, E. Allevi, M. Bertocchi, V. Moriggia, Apogeo, Milano ISBN: 978-88-7534-044-5.
- [49] Allevi, E. & Maggioni, F. (2010) chapter 3 Il metodo L-Shaped. In *Programmazione stocastica e applicazioni* by J. Abaffy, E. Allevi, M. Bertocchi, V. Moriggia, Apogeo, Milano ISBN: 978-88-7534-044-5.
- [50] Maggioni, F. (2010) Modelli di ottimizzazione stocastica per lo scheduling di mezzi di trasporto nel settore cementifero. In chapter 4: Applicazioni in finanza ed economia by M. Bertocchi in *Programmazione stocastica e applicazioni* by J. Abaffy, E. Allevi, M. Bertocchi, V. Moriggia, Apogeo, Milano, ISBN: 978-88-7534-044-5.
- [51] Maggioni, F., Bertazzi, L. & Kaut, M. (2010) Scheduling di mezzi di trasporto nel settore cementifero. *Matematica e Impresa*, Edizione 2010.
- [52] Maggioni, F. (2017) La bellezza e l'utilità della matematica: un omaggio a Marida Bertocchi. *Atti dell'Ateneo di Bergamo*, 185–196.

- [53] Maggioni, F. (2019) La programmazione non lineare. Capitolo 6 in *Strategie, Introduzione alla teoria dei giochi e delle decisioni* (C. Bertini, G. Gambarelli, I. Stach eds), Giappichelli Editore, forthcoming.
- [54] Maggioni, F. (2019) La programmazione stocastica. Capitolo 10 in *Strategie, Introduzione alla teoria dei giochi e delle decisioni* (C. Bertini, G. Gambarelli, I. Stach eds), Giappichelli Editore, forthcoming.

#### **Ph.D. Thesis**

- [55] Maggioni, F. (2006) Kinematics of elastic filaments and magnetic relaxation of flux tubes. *Ph.D. Thesis*, University of Milano-Bicocca.

#### **Papers Under Evaluation in International Journals with Peer-Review Process**

- [56] Crainic, G.T., Hewitt, M., Maggioni, F. & Rei, W. Partial Benders decomposition: general methodology and application to stochastic network design.  
**Status: under review** in *Transportation Science*.
- [57] Maggioni, F., Cagnolari, M., & Bertazzi, L. The value of the right distribution in stochastic programming and its application to a lot sizing problem.  
**Status: under review (second round)** in *Computational Management Science*.
- [58] Cavagnini, R. Hewitt, M. & Maggioni, F. Task assignment models considering stochastic learning and forgetting rates.  
**Status: under review** in *International Journal of Production Economics*.

#### **Work in Progress**

- [60] Peng, S., Lisser A. & Maggioni, F. Bounds for probabilistic constrained problems. [http://www.optimization-online.org/DB\\_HTML/2018/10/6884.html](http://www.optimization-online.org/DB_HTML/2018/10/6884.html).
- [61] Cavagnini, R., Bertazzi, L. & Maggioni, F. & Hewitt, M., A two-stage stochastic optimization model for the Bike sharing allocation and rebalancing problem.
- [62] Bertazzi, L., Maggioni, F., Meisel, S. & Powell, WB. Analysis of policies in an energy storage problem with stochastic loads.
- [63] Maggioni, F. & Cavagnini, R. Optimization driven monotonic bounds for stochastic programs.
- [64] Maggioni, F., Dabbene, & Pflug, G. On the sample complexity of multistage robust convex optimization problems. (A previous version of the manuscript is available at <https://arxiv.org/abs/1611.00980>).
- [65] Filippi, C. Maggioni, F. & Speranza, M.G. Stochastic shortest path: a review and open problems.
- [66] Lauria, D., Consigli, G. & Maggioni, F. Distributionally robust chance-constrained dynamic pension fund management.

- [67] Faccini, D., Maggioni, F. & Potra, F. Robust optimization models for machine learning with application to breast cancer detection.
- [68] Bomze, I., Gabl, M., Maggioni, F. & Pflug, G. Two-stage stochastic optimization of StQPs for clustering in social networks with elites under uncertainty.
- [69] Deilami Moezi, S., Bertazzi, L. & Maggioni, F. A multi-modal single link shipping problem with given frequencies and lead times.
- [70] Cavagnini, R. Crainic, T., Maggioni, F. & Rei, W. The multi-commodity two-echelon vehicle routing problem with time windows and stochastic travel times.

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Francesca Maggioni