

## Curriculum Vitae Marc Teboulle

**ADDRESS** School of Mathematical Sciences  
Tel Aviv University  
Tel Aviv 69970, Israel

### EDUCATION

- 1974-1977 B.Sc., Applied Mathematics. Technion, Israel Institute of Technology, 1977.
- 1977-1978 M.Sc., Applied Mathematics. Technion, Israel Institute of Technology, 1978.
- 1982-1985 D.Sc., Operations Research. Technion, Israel Institute of Technology, 1985.

### ACADEMIC AND PROFESSIONAL EXPERIENCE

- 1979-1982 Applied Mathematician – Research Engineer, Division of Navigation Systems, Israel Aircraft Industries, Lod, Israel
- 1982-1985 Teaching Assistant, Faculty of Engineering and Management, Technion, Haifa, Israel
- 1985-1987 Post Doctoral Fellow, Department of Mathematics, Statistics and Computer Science, Dalhousie University, Halifax, Nova Scotia, Canada
- 1987-1996 Full Professor, Department of Mathematics and Statistics, University of Maryland, Baltimore County, Maryland, USA, (Assistant Professor 1987-91, Associate Professor 1991-95)
- 1994-Present Full Professor (since 1996), School of Mathematical Sciences, Tel Aviv University, Tel Aviv, Israel

### RESEARCH INTERESTS

Continuous Optimization: Theory, Numerical Methods and Applications.

Complexity analysis of Optimization Algorithms.

Lagrangian and Dual Decomposition Methods. Variational Inequalities.

Nonconvex Nonsmooth Large Scale Optimization.

Applications in Engineering Science, Machine Learning and Finance.

### AWARDS, PRIZES and HONORS

- 1988 The Lady Davis Fellowship.
- 2006 ORSIS Prize for Excellence in Operations Research.
- 2013 ORSIS Prize for Excellence in Operations Research.
- 2017 SIAM Optimization Prize.
- 2017 SIAM Fellow
- 2018 Plenary Speaker, ISMP 2018 Bordeaux, France.
- 2019 The Eric and Sheila Samson Chair of Optimization.

**EDITORIAL BOARD OF JOURNALS – CURRENT**

- 2016-present Corresponding Editor: *ESAIM-COCV, Control Optimization and Calculus of Variations*.
- 2011-present Associate Editor: *Journal of Optimization Theory and Applications*.
- 2014-present Associate Editor: *SIAM J. Optimization*.
- 2014-present Associate Editor: *SMAI J. Computational Mathematics*.
- 2015-present Associate Editor: *Peer J. Computer Science*.
- 2018-present Associate Editor: *SIAM J. Mathematics of Data Sciences*
- 2019-present Steering committee: *OJMO Open Journal of Mathematical Optimization*

**PAST EDITORIAL ACTIVITIES**

Area Editor for *APJOR - Asia Pacific Journal of Operations Research* (2008-2012), Associate Editor for: *Mathematics of Operations Research* (1992-2013), *Operations Research Letters* (1992-2002), *COCV, Control Optimization and Calculus of Variations* (2002-2016), *Science China Mathematics, Chinese Academy of Sciences* (2013-2017); Area Editor – Continuous Optimization for *Mathematics of Operations Research* (2013-2018).

**TEACHING EXPERIENCE****Courses at Tel Aviv University**

- 0365-2302 – Operations Research 1 (undergraduate).
- 0365-3531 – Operations Research 2 (undergraduate).
- 0365-3421 – Seminar in Operations Research (undergraduate)
- 0365-4409 – Convex Analysis and Optimization (graduate).
- 0365-4414 – Algorithms in Continuous Optimization (graduate).
- 0365-4107 – Advanced Topics in Modern Optimization (graduate).
- 0365-4563 – Seminar in Operations Research (graduate).
- 0365-4103 – Advanced Seminar in Continuous Optimization (graduate).

**RESEARCH GRANTS**

- NSF, 1988-1990 Principal investigator on a project funded by the *National Science Foundation* under grant ECS-8802239. Project entitled “Duality Methods for Infinite Dimensional Optimization Problems”.

- AFORS, 1988-1990 Principal investigator on a project funded by the *Air Force Office for Scientific Research* under grant AFORS 88-0218. Project entitled "Duality Methods for Infinite Dimensional Optimization Problems".
- DURIP, 1990-1991 Co-investigator in Defense University Research Instrumentation Program (DURIP). Awarded grant for aquisition of an ARDENT/TITAN mini-supercomputer.
- AFOSR, 1990-1991 Co-Principal investigator (with T. Seidman) funded by the *Air Force Office for Scientific Research* on a project entitled " Stabilization and shape optimization for distributed structures", under grant AFOSR 91-0008.
- NSF, 1992-1994 Principal investigator on a project funded by the *National Science Foundation* under grant DMS-9201297. Project entitled "Proximal-like Methods in Optimization and Applications".
- NSF, 1994-1996 Principal investigator on a project funded by the *National Science Foundation* under grant DMS-94011871. Project entitled "Modified Lagrangians Methods in Optimization".
- FISCP, 1997-1999 Co-Principal Investigator (with A. Auslender, Paris) on a project funded by *French-Israel Scientific Cooperation Program: Arc en Ciel*. Project entitled " Numerical Methods in Nonlinear and Semidefinite Optimization".
- IMS,1996-1999 Co-Principal Investigator (with A. Ben-Tal and A. Nemirovski– Technion) on a project funded by the *Israel Ministry of Science*. Project entitled " Large Scale Optimization: Modeling, Algorithms and Applications"
- BSF, 2003-2007 Co-Principal Investigator (with J. Kogan, U. of Maryland) on a project funded by BSF, *The US-Israel Binational Science Foundation*. Project Entitled " Nonlinear Optimization Methods for Cluster Analysis". BSF-20022010.
- ISF, 2006-2010 Co-Principal Investigator (with A. Beck, Technion) on a project funded by ISF, *The Israel Science Foundation*. Project Entitled " Specially Structured Nonconvex Continuous Optimization Problems: Theory, Algorithms and Applications". ISF 489/06
- BSF, 2009-2013 Co-Principal Investigator (with A. Beck (Technion), A. Nedic, (U. of Urbana Champaign, Illinois), A. Ozdaglar, (MIT, Cambridge)) on a project funded by BSF *The US-Israel Binational Science Foundation*. Project Entitled " Gradient Based Methods in Optimization: Theory, Algorithms and Applications." BSF-2008100.
- ISF, 2012-2016 Principal Investigator on a project funded by ISF *The Israel Science Foundation*. Project Entitled " Proximal Decomposition Algorithms in Optimization: New Challenges and Perspectives". ISF-998/12.
- GIF, 2015-2019 Co-Principal Investigator (with R. Luke, University of Gottingen, Germany) on a project funded by GIF *The German Israel Foundation for Research and Development*. Project Entitled " Algorithms for Structured Nonconvex Optimization: Theory and Practice." GIF-G12533304-2014.
- ISF, 2016-2020 Principal Investigator on a project funded by ISF *The Israel Science Foundation*. Project Entitled " First Order Methods: Analysis and Applications". ISF-1814/16.

- DFG, 2020-2023 Co-Principal Investigator (with R. Luke, University of Gottingen, and S. Sabach, Technion) on a project funded by DFG *The German Science Foundation*. Project Entitled “ Nonconvex Quadratic Composite Minimization: Theory and Algorithms ”.

## GRADUATE STUDENTS WITH RESEARCH THESIS & POST DOCS

- Gong Chen. Proximal and decomposition methods in convex programming, Ph.D. thesis. University of Maryland, Blatimore County, June 1993
- Nina Bogdan. Subgradient and bundle methods in nonsmooth optimization, M.Sc. Thesis. University of Maryland, Baltimore County, May 1994
- Moshe Hershkovitz. An Optimization model for grasping quality measures: Theoretical Analysis and Experimental Validation. (Co-advisor:U. Tash, Mechanical Engineering ), Ph.D. thesis. University of Maryland June 1994.
- Amir Beck. Global Optimality Conditions for Quadratic Optimization with Applications to Graph Theory. M.Sc.thesis. Tel-Aviv University, June 1997.
- Moshe Dolvjansky. Proximal Interior Proximal Algorithms and Lagrangian Methods for semi-definite programming. M.Sc.thesis. Tel-Aviv University, February 1997.
- Amir Beck. Convergence rates analysis of gradient-based methods in constrained optimization. Ph.D.thesis. Tel-Aviv University, 2003.
- Tomer Shaked. Computational Experiments with Lagrangian methods for large scale optimization problems. M.Sc.thesis. Tel-Aviv University, 2002.
- Lubov Tetrushvili. A Logarithmic barrier projection algorithm for nonlinear complementary problems. M.Sc. thesis. Tel-Aviv University, 2005.
- Ehud Azikri. Approximation and Smooth iterative minimization schemes for clustering. M.Sc. thesis. Tel-Aviv University, 2009.
- Ron Shefi. A Moving Balls Approximation Method for Smooth Constrained Minimization. M.Sc., thesis. Tel-Aviv University, 2009.
- Amir Alon. Sparse approximation of signals via iterative nonconvex optimization. M.Sc thesis, Tel-Aviv University, 2009.
- Eyal Cohen. First Order Lagrangian Methods for Compressive Sensing Problems. M.Sc., thesis. Tel Aviv University, 2011.
- Ronny Luss. Post Doctoral Fellow. (Ph.D Princeton).
- Yoel Drori. Contribution to the Complexity analysis of Optimization Algorithms. Ph. D., thesis. Tel Aviv University 2014.
- 2012-2013 Shoham Sabach. Post Doctoral Fellow. 2012-2013 (Ph. D Technion).
- Kobi Zatlavy. First Order Iterative Methods for the Source Localization Problems. M.Sc., thesis. Tel Aviv University 2014.

- Ron Shefi. Rate of Convergence Analysis of Lagrangian and Decomposition algorithms in Convex Optimization. Ph. D., thesis. Tel Aviv University 2014.
- 2017-2019 Yakov Vaisbourg. Post Doctoral Fellow. (Ph.D 2017, Technion).
- 2018-2019 Nadav Hallak. Post Doctoral Fellow. (Ph.D 2018, Technion).
- Eyal Cohen. 2018– Ph.D student.

#### CONFERENCES – INVITED and PLENARY TALKS ONLY (SINCE 1995)

- July 1995 *IMA Workshop on Large Scale Optimization*, University of Minnesota, Minneapolis, USA
- March 1996 *Journées de Mathématiques de l'optimisation et de la décision*. Université de Limoges, France
- April 1997 *International Workshop on Semidefinite and Large Scale Optimization*, Technion, Israel.
- June 1997 *Journées d'Optimisation*, Université de Bourgogne, France.
- August 1997 *ISMP – XVI International Symposium in Mathematical Programming*, EPFL Lausanne, Switzerland.
- September 1998 *Workshop on Ill-posed variational problems and regularization techniques*, University of Trier, Germany.
- September 1998 Plenary Speaker. *9 th Belgian-French-German Conference in Optimization*, Faculte Universitaire Notre Dame de La Paix, Namur, Belgium.
- May 1999 Annual Meeting, Israel Mathematical Union, University of Haifa, Haifa, Israel.
- June 1999 Plenary Speaker. *Brazilian Workshop on Continuous Optimization*, IMPA, Rio de Janeiro, Brazil.
- January 2000 *Workshop on Kontinuierliche Optimierung and Industrieanwendungen*, Oberwolfach, Germany.
- March 2000 *Workshop on Inherently parallel algorithms in feasibility and optimization and their applications*, Haifa, Israel.
- August 2000 *ISMP – XVII International Symposium in Mathematical Programming*, Georgia Institute of Technology, Georgia, USA.
- August 2000 *Israeli-German Summer School, in Modern Optimization and Applications to Engineering*. Minerva Optimization Center, Technion, Israel.
- May 2002 *SIAM Optimization Conference*, Toronto, Canada.
- September 2002 Plenary speaker. *SIJOM Sino-Japanese Conference in Optimization*, Kyoto, Japan.

- September 2003 *Israeli-German Summer School, in Modern Optimization and Applications to Engineering*. Thurnau, Germany.
- July 2003 *Workshop on Advances in Continuous Optimization*. Istanbul, Turkey.
- November 2003 *International Conference on Information and Knowledge Management*, New Orleans, USA.
- June 2004 *International Workshop on Variational Limits*, Weizmann Institute, Rehovot, Israel.
- August 2004 Tutorial Speaker. *Inaugural International Conference in Continuous Optimization-ICCOPT I*, RPI, Troy, USA.
- January 2005 Plenary Speaker. *7th French-Latin American Congress on Applied Mathematics*, Santiago, Chile.
- May 2005 *SIAM Conference on Optimization*, Stockholm, Sweden.
- June 2005 *Workshop on Algorithmic Techniques for Data Mining*. Karmiel, Israel.
- May 2006 *ORSIS Conference*, Naharya, Israel.
- June 2006 Plenary Speaker. *International Conference on Nonlinear Programming and Applications*, Shanghai, China.
- July 2006 *Workshop on Advances in Continuous Optimization*. Reykjavik, Iceland.
- June 2007 *Optimisation, jeux et dynamique de la decision avec cout au changement: modelisation et algorithmes*. University of Avignon, France.
- August 2007 Plenary Speaker. *International School of Mathematics "G. Stampacchia" 46th Workshop, New Problems and Innovative Methods in Nonlinear Optimization*. Erice, Italy
- April 2008 Plenary Speaker. *The Second International Conference on Nonlinear Programming with Applications NPA2008*. Academy of Mathematics and Systems Science (AMSS), Beijing, China
- June 2008 *Conference Dynamiques et Optimisation*, Universite Paris 6, Paris, France.
- June 2009 *Conference on Approximation and Optimization in Modern Image Restoration and Reconstruction*, Ile de Porquerolles, France.
- September 2009 *Conference on Variational Analysis and Optimization*. Montpellier, France
- November 2009 *BIRS Interdisciplinary Workshop on Fixed-Point Algorithms for Inverse Problems in Science and Engineering*. Banff International Research Station for Mathematical Innovation and Discovery, Alberta, Canada.
- September 2010 Tutorial talk. *Modern Trends in Optimization and Its Application*. IPAM, UCLA, Los Angeles, USA.
- December 2010 *IPAM Workshop on Applications of Optimization in Science and Engineering*. UCLA, Los Angeles, USA.

- September 2011 Plenary Speaker. *SJOM–Sino-Japan Optimization Conference*. Beijing, China.
- November 2011 *Optimization Methods Applied to Operations Research and Engineering*. Ein Gedi, Dead Sea, Israel
- May 2012 *SIAM Imaging Sciences Conference*, May 19-22, 2012 – Philadelphia, USA.
- August 2012 *ISMP 2012 – International Mathematical Programming Symposium*. Berlin, Germany.
- September 2012 *Advances in Mathematical Image Processing*. Gottingen, Germany
- December 2012 Plenary speaker. *International Conference on Imaging Science*. Hong Kong, China.
- January 2013 *Optimization and Statistical Learning Workshop*. Ecole de Physique, Les Houches, France.
- April 2013 Plenary speaker. *First International Symposium on Nanoscale Photonic Imaging*. University of Gottingen, Gottingen, Germany.
- June 2013 *EUROPT 2013, 11th Workshop in Advances in Continuous Optimization*, June 26–28, 2013, Firenze, Italy.
- July 2013 *ICCOPT 2013, International Conference on Continuous Optimization*, July 17–August 1st, 2013, Lisbon, Portugal.
- October 2013 Plenary Speaker. *The Gaspard Monge Optimization Conference - Fondation Mathématique Hadamard*. ENSTA Paris Tech, Paris, France.
- November 2013 *First Workshop on Optimization for Image and Signal Processing*. Ecole Polytechnique, Paris, France.
- May 2014 *SIAM Conference on Imaging Science 2014*, May, Hong Kong, China.
- June 2014 *American Mathematical Society and Israel Mathematical Union - International Meeting*. Tel Aviv University, Tel Aviv, Israel.
- January 2015 *TSIMF – New Trends in Optimization for Imaging*. Sanya, China.
- March 2015 *POST2015 - Pluridisciplinary Optimization Seminar Toulouse*, Toulouse, France.
- June 2015 Key Note Speaker. *SSVM 2015 - International Conference on Scale Space and Variational Methods in Computer Vision*, Liege Le-Cap Ferret, France.
- July 2015 *ISMP 2015 – International Symposium on Mathematical Programming*, Pittsburgh, USA.
- October 2015 *International Workshop on Optimization in machine learning, vision and image processing*, University of Toulouse, Toulouse, France.
- December 2015 *Operations Research Conference In Memory of Professor Uriel G. Rothblum*. Technion, Haifa, Israel.

- February 2016 *Workshop Optimization without Borders*. Les Houches, France.
- July 2016 Plenary speaker. *SIAM Annual Meeting*. Boston, USA.
- August 2016 Plenary speaker. *International Conference on Numerical Analysis, Approximation and Optimization*. Beijing, China.
- August 2016 *ICCOPT 2016 - International Conference in Continuous Optimization*. Tokyo, Japan.
- September 2016 Plenary speaker. *ECCO 2016 - European Conference on Computational Optimization*, Leuven, Belgium.
- March 2017 *Workshop on Shape, Images and Optimization*, Muenster, Germany.
- June 2017 *ECM 2017 Third International Conference on Engineering and Computational Mathematics*. The Hong Kong Polytechnic University, Hong Kong.
- October 2017 *German-Israeli Research Workshop on Optimization*. The Technion, Haifa, Israel.
- October 2017 *BIRS - CMO Workshop Beyond Convexity: Emerging Challenges in Data Science*, Oaxaca, Mexico.
- April 2018 *GDO 2018 – Games, Dynamics, and Optimization Workshop*. University of Vienna, Vienna, Austria.
- April 2018 Key Note Speaker. *SFB F32 MOBIS: Mathematical Optimization and Applications in Biomedical Sciences*. Gratz, Austria.
- April 2018 *Optimization and Discrete Geometry : Theory and Practice*. Tel Aviv University, Tel Aviv, Israel.
- June 2018 *Workshop Optimization - Fundamentals and Algorithms for Structured Problems*. CIMI, University of Toulouse, Toulouse, France.
- July 2018 Plenary Speaker. *ISMP 2018 – International Symposium on Mathematical Programming*, Bordeaux, France.
- August 2018 *International School of Mathematics “G. Stampacchia” 69th Workshop, Variational Analysis and Applications*. Erice, Italy.
- January 2019 The Frontier of Mathematics Lecture. Institute for Mathematical Research. The University of Hong Kong, Hong Kong.
- January 2019 The Greater Bay Area Workshop on Computational Optimization. Hong Kong Polytechnic University, Hong Kong.
- February 2019 Numerical Algorithms in Nonsmooth Optimization Workshop. ESI, Vienna, Austria.
- April 2019 GDO 2019 Games, Dynamics, and Optimization Workshop. Babes-Bolyai University, Cluj-Napoca, Romania.



- September 2019 ANITI Workshop: Optimization and Statistics. University of Toulouse 1, France.
- December 2019 Conference on Advances in Nonsmooth Analysis and Applications. SUSTech, Shenzhen, China.
- April 2020 One World Optimization Seminar series <https://owos.univie.ac.at>

## ADMINISTRATIVE SERVICES

Faculty Senator, (1992-1994), University of Maryland, Baltimore County, Baltimore, Maryland, USA.

Chair and Member of several MSc. and Ph.D disserations Committees for the Engineering School and Mathematics and Statistics Departments, (1988-1994) University of Maryland, Baltimore, USA.

Promotion and Tenure Committee, Department of Mathematics, (1991-1993), University of Maryland, Baltimore County, Baltimore, USA.

Chair, Undergraduate students Education committee in Statistics and Operations Research, (1996-1999), Tel-Aviv University.

Member of the University Senate, (1996-present), Tel-Aviv University.

Promotion and Tenure Committee, School of Mathematical Sciences (1999-2002), Tel-Aviv University.

Chairman, Department of Statistics and Operations Research, (1999-2002), Tel-Aviv University.

University Admission Committee, (2011–2017), Tel Aviv University

## OTHER PROFESSIONAL ACTIVITIES

- **Conferences Committee/Organization**

Cluster chair ISMP for “Nonsmooth Optimization” (2009, 2012, 2015)

Stream organizer “Convex Optimization”, EURO (2006, 2012).

Co-organizer: Continuous Optimization :Challenges and Applications – International Conference in Honor of A. Ben-Tal 70th birthday, September 5-9, 2016. Technion Haifa.

Co-organizer: Workshop on Optimization on the occasion of Prof. Roman Polyak’s 80th Birthday. April 2017, Technion, Haifa.

Scientific Committee: SMAI-MODE 2018, Grenoble, France.

Programm Committee: ICCOPT 2019. International conference in Continuous Optimization, August 2019, Berlin, Germany.

- **Prize Committee Member:** The Jean-Jaques Moreau Prize of Optimization (2019), Societe Mathematiques de France and Academie des Sciences.

- **Reviewer/Member of review panels:** DOE Applied Mathematical Sciences Research Program in Mathematical Programming and Optimization Theory, National Science Foundation, Department of US Energy research, Binational Science Foundation, Australian Research Council, Israel Science Foundation, DFG Germany, ANR France, CERG Hong-Kong, FWF Austrian Science Fund etc...
- **External Examiner of Ph.D Dissertations:** University of South Africa, south Africa (1991), Dalhousie University, Canada (1993), University of Montpellier, France (1994), Technion, Haifa (1995,1997,2000...,2012,...2015,...), University of Jyvaskyla, Finland (2008), University of Paris 6, France (2014), University of Caen, France (2016)...ect...
- **Refereeing of research papers for:** Annals of Operations Research, Computational Optimization and Applications, Information and Control, Journal of Optimization Theory and Applications, Journal of Computational Statistics and Data Analysis, Journal of Mathematical Analysis and Applications, Mathematical Programming, Mathematics of Operations Research, Optimization, Operations Research Letters, SIAM Journal on Control and Optimization, SIAM Journal on Optimization, Zeitschrift für Operations Research, IEEE Trans. Information Theory, ...etc....

#### MEMBERSHIP OF PROFESSIONAL SOCIETIES

- 1985–ORSIS – Operations Research Society of Israel
- 1987–MPS – Mathematical Programming Society
- 1988–SIAM – Society for Industrial and Applied Mathematics

#### SHORT TERM VISITS – One to 4 weeks

University of Texas, Austin, Texas, (USA) University of Michigan, Ann Arbor, (USA);  
 University of Colorado, Denver, Colorado, (USA); University of Delaware, Delaware, (USA);  
 University of Haifa, Haifa, (Israel); University of Haifa, Haifa, (Israel);  
 IMPA, Institute for Pure and Applied Mathematics, Rio de Janeiro, (Brazil);  
 Univesrity of Waterloo, Waterloo, (Canada); Ben-Gurion University, Beer-Sheva, (Israel);  
 University of Montpellier, Montpellier, (France); University of Limoges, Limoges, (France);  
 Institute of Mathematics and Applications, University of Minnesota, Minneapolis, (USA);  
 Ecole Polytechnique, Paris, (France); Kyoto University, Kyoto, (Japan);  
 Universite de Bourgogne, Dijon, (France); University Lyon I, Lyon, (France);  
 University of Maryland, (USA); Fudan University, Shanghai, (China);  
 Hong-Kong Polytechnic Institute, Hong-Kong (China); George Mason University, Virginia (USA);  
 University of Paris 6, Paris, (France); Sen Yat Sen University, Kaoshung, (Taiwan);  
 Rutgers University, New Brunswick (USA); Academy of Sciences, Beijing, (China);  
 UCLA-University of California, Los Angeles, (USA);  
 EPFL – Ecole Polytechnique de Lausanne, Lausanne, (Switzerland);  
 Hong Kong Baptiste University, Hong-Kong (China); University of Toulouse, Capitole, (France);  
 University of Gottingen, Gottingen, (Germany); The University of Hong Kong, Hong Kong.

## List of Publications – Marc Teboulle

### BOOKS

- A. Auslender and M. Teboulle. *Asymptotic Cones and Functions in Optimization and Variational Inequalities*. Springer Monographs in Mathematics, Springer-Verlag, New York, 2003.
- J. Kogan, C. Nicholas, and M. Teboulle. (Editors). *Grouping Multidimensional Data: Recent Advances in Clustering*. Springer Verlag, NY, (2006).
- A. Attouch, R. Cominetti, and M. Teboulle. (Guest Editors). *Nonlinear Convex Optimization and Variational Inequalities*. Mathematical Programming, Series B Volume 116. Springer (2009).

### REFEREED PAPERS

1. A. Ben-Tal, M. Teboulle, J. Zowe. Second order necessary optimality conditions for semi-infinite programming. In *Semi-Infinite Programming*, Springer Lecture Notes In Control and Information Sciences (R. Hettich, ed.) **15**, (1979), 17-30.
2. J. Hasson, B. Priel, M. Teboulle. Noise effect on optimal multistage gyrocompassing. *Proceedings of the 13th Convention of electrical and Electronic Engineers, IEEE Publication*, Israel (1984).
3. A. Ben-Tal, M. Teboulle. The duality between expected utility and penalty in stochastic linear programming. Springer Lecture Notes in Control and Information Sciences (F. Archetti et al., eds) **76**, (1986), 151-161.
4. A. Ben-Tal, M. Teboulle. Expected utility, penalty functions and duality in stochastic non-linear programming. *Management Science*, **32** (1986), 1445-1466.
5. A. Ben-Tal, M. Teboulle. Rate distortion theory with generalized information measures via convex programming duality. *IEEE Transactions of Information Theory*, **IT 32**, (1986), 630-641.
6. A. Ben-Tal, M. Teboulle. Penalty functions and duality in stochastic programming via  $\phi$ -divergence functionals. *Mathematics of Operations Research*, **12**, (1987), 224-240.
7. A. Ben-Tal, M. Teboulle, A. Charnes. The role of duality in optimization problems involving entropy functionals. *J. of Optimization Theory and Applications*, **58**, (1988), 209-223.
8. A. Ben-Tal, M. Teboulle. Extension of some results for channel capacity using a generalized information measure. *J. of Applied Mathematics and Optimization*, **17**, (1988), 121-132.
9. A. Ben-Tal, J.M. Borwein, M. Teboulle. A dual approach to multidimensional  $L_p$  spectral estimation problems. *SIAM J. of Control and Optimization*, **26**, (1988), 985-996.
10. J. Birge, M. Teboulle. Upper bounds on the expected value of a convex function using gradient and conjugate function information. *Mathematics of Operations Research*, **14**, (1989), 745-759.
11. A. Ben-Tal, A. Charnes, M. Teboulle. Entropic means. *J. of Mathematical Analysis and Applications*, **139**, (1989), 537-551.

12. M. Teboulle. A simple duality proof for quadratically constrained entropy functionals and extensions to convex constraints. *SIAM J. of Applied Mathematics*, **49**, (1989), 1845-1850.
13. A. Ben-Tal, M. Teboulle. A smoothing technique for nondifferentiable optimization problems. *Optimization*, Springer Lecture Notes in Mathematics (S. Dolecki, ed.), Vol. 1405 (1989), 1-11.
14. M. Teboulle. Nonlinear perturbations for linear semi-infinite optimization problems. *Proc. of the 29th IEEE Conference on Decision and Control*, (1990), 2477-2478.
15. A. Ben-Tal, M. Teboulle. A geometric property of the least squares solution of linear equation. *Linear Algebra and Applications*, 139 (1990), 165-170.
16. M.S. Gowda, M. Teboulle. A comparison of constraint qualifications in infinite dimensional convex programming. *SIAM J. of Control and Optimization*, **28**, (1990), 925-935.
17. A. Ben-Tal, A. Ben-Israel, M. Teboulle. Certainty equivalents and information measures: duality and extremal principles. *J. of Mathematical Analysis and Applications*, **157**, (1991), 211-236.
18. A. Ben-Tal, M. Teboulle. Portfolio theory for the recourse certainty equivalent maximizing investor. *Annals of Operations Research*, **31**, (1991), 479-499.
19. A. Ben-Tal, M. Teboulle, W.H. Yang. A least-squares based method for a class of nonsmooth minimization problems with applications in plasticity. *J. of Applied Mathematics and Optimization*, **24**, (1991), 273-288.
20. M. Teboulle. On  $\varphi$ -divergence and its applications. *Systems and Management Science by Extremal Methods*(f.Y. Phillips, J. Rousseau, eds.), Kluwer Academic Press, Chap. 17 (1992), 255-273.
21. A. Ben-Tal, J.M. Borwein, M. Teboulle. Spectral estimation via convex programming. *Systems and Management Science by Extremal Methods* (f.Y. Phillips, J. Rousseau, eds.), Kluwer Academic Press, Chap. 18 (1992), 275-289.
22. M. Teboulle. Entropic proximal mappings with applications to nonlinear programming. *Mathematics of Operations Research*, **17**, (1992), 670-690.
23. A.N. Iusem, M. Teboulle. A primal-dual iterative algorithm for a maximum likelihood estimation problem. *J. of Computational Statistics and Data Analysis*, **14**, (1992), 443-456.
24. G. Chen, M. Teboulle. Convergence analysis of a proximal-like minimization algorithm using Bregman's function. *SIAM J. of Optimization*, **3**, (1993), 538-543.
25. M. Teboulle, I. Vajda. Convergence of best  $\varphi$ -entropy estimates. *IEEE Transactions on Information Theory*, **39**, (1993), 297-301.
26. M. Teboulle, J. Kogan. Applications of optimization methods to robust stability of linear systems. *J. of Optimization Theory and Applications*, **81**, (1994), 169-192.
27. A.N. Iusem, M. Teboulle. A regularized dual-based iterative method for a class of image reconstruction problems. *Inverse Problems*, **9** (1993), 679-696.

28. A.N. Iusem, B.F. Svaiter, M. Teboulle. Entropy-like methods in convex programming. *Mathematics of Operations Research*, **19**, (1994), 790-814.
29. G. Chen, M. Teboulle. A proximal-based decomposition method for convex minimization problems. *Mathematical Programming*, **64**, (1994), 81-101.
30. A.N. Iusem, M. Teboulle. On the convergence rate of Entropic proximal optimization algorithms. *Computational and Applied Mathematics*, **12**, (1993), 153-168.
31. A.N. Iusem, M. Teboulle. Convergence rate analysis of nonquadratic proximal and augmented Lagrangian methods for convex and linear programming. *Mathematics of Operations Research*, **20**, (1995), 657-677.
32. M. Hershkovitz, U. Tash, M. Teboulle. Towards a mathematical formulation of the human grasping quality sense. *Journal of Robotic Systems*, **12**, (1995), 249-256.
33. A.N. Iusem, B.F. Svaiter, M. Teboulle. Multiplicative interior gradient methods for minimization over the nonnegative orthant. *SIAM J. Control and Optimization*, **34**, (1996), 389-406.
34. M. Hershkovitz, U. Tash, M. Teboulle, J. Tzelgov. An optimization model for the human grasping quality sense. *Proceedings on Mechanical Engineering*, (1996), 68-72.
35. A. Ben-Tal, M. Teboulle. Hidden convexity in some nonconvex quadratically constrained quadratic programming. *Mathematical Programming*, **72**, (1996), 51-63.
36. A. Ben-Tal, M. Teboulle. A conjugate duality scheme generating a new class of differentiable duals. *SIAM J. on Optimization*, **6**, (1996), 617-625.
37. R. Polyak, M. Teboulle. Nonlinear rescaling and proximal-like methods in convex optimization. *Mathematical Programming*, **76**, (1997), 265-284.
38. M. Hershkovitz, U. Tash, M. Teboulle, J. Tzelgov. Experimental Validation of an Optimization Formulation of the Human Grasping Quality Sense. *Journal of Robotic Systems*, **14**, (1997), 743-766.
39. M. Teboulle. Convergence of Proximal-like Algorithms. *SIAM J. Optimization*, **7**, (1997), 1069-1083.
40. M. Hershkovitz and M. Teboulle. Sensitivity analysis for a class of robotic grasping quality functionals. *Robotica*, **16**, (1998), 227-235.
41. M. Doljansky, M. Teboulle. An interior proximal algorithm and the exponential multiplier method for semidefinite programming. *SIAM J. Optimization*, **9**, (1998), 1-13.
42. A. Auslender, M. Teboulle and S. Ben-Tiba. A logarithmic-quadratic proximal method for variational inequalities. *J. of Computational Optimization and Applications*, **12**, (1999), 31-40.
43. A. Auslender, M. Teboulle and S. Ben-Tiba. Interior proximal and multiplier methods based on second order homogeneous kernels. *Mathematics of Operations Research*, **24**, (1999), 645-668.

44. A. Auslender, M. Teboulle and S. Ben-Tiba. Coupling the logarithmic-quadratic proximal method and the block nonlinear Gauss-Seidel algorithm for linearly constrained convex minimization. *Ill-Posed Problems Variational Problems and Regularization Techniques, Lecture Notes in Economics and Mathematical Systems*, 477, (1999), 35-47.
45. A. Beck and M. Teboulle. Global optimality conditions for quadratic optimization problems with binary constraints. *SIAM J. Optimization*, **11**, (2000), 179–188.
46. A. Auslender and M. Teboulle. Lagrangian duality and related multiplier methods for variational inequalities. *SIAM J. Optimization*, **10**, (2000), 1097–1115
47. A. Beck and M. Teboulle. A Probabilistic result for the max-cut problem on random graphs. *Operations Research Letters*, **27**, (2000),209-214.
48. M. Teboulle  
Lagrangian Multiplier Methods in Convex Programming.  
*Encyclopedia of Optimization*, Kluwer Academic Press, (2001).
49. A. Auslender and M. Teboulle. Entropic proximal decomposition methods for convex programs and variational inequalities. *Mathematical Programming*, **91**, (2001), 33-47.
50. A. Auslender and M. Teboulle. A logarithmic-quadratic projection method for convex feasibility problems. *Studies in Computational Mathematics*, **8**, (2001), 1-10.
51. A. Beck and M. Teboulle. Convergence rate analysis and error bounds for projection algorithms in convex feasibility problems. *Optimization Methods & Software*, **18**, (2003), 377–394.
52. A. Auslender and M. Teboulle. Logarithmic-quadratic proximal methodology in convex optimization algorithms and variational inequalities. In *Equilibrium problems and variational models: Nonconvex Optimization and Applications Series*, **68**, 2003, 19–52.
53. A. Beck and M. Teboulle. Mirror Descent and Nonlinear Projected Subgradient Methods for Convex Optimization. *Operations Research Letters*, **31**, (2003), 167–175.
54. J. Kogan , M. Teboulle and C.Nicholas. The entropic geometric means algorithm: an approach to building small clusters for large text datasets. *IEEE Proceedings of Workshop on Clustering Large Data Sets*, (2003), 63–71.
55. H. Attouch and M. Teboulle. A regularized Lotka-Volterra dynamical system as a continuous proximal-like method in optimization. *Journal of Optimization Theory and Applications*, **121**, (2004), 541–570.
56. A. Beck and M. Teboulle. A conditional gradient method with linear rate of convergence for solving convex linear systems. *Mathematical Methods of Operations Research*, **59**, (2004), 235–247.
57. J. Bolte and M. Teboulle. Barrier operators and associated gradient-like dynamical systems for constrained minimization problems. *SIAM Journal on Control and Optimization*, **42**, (2003), 1266–1292.
58. A. Auslender and M. Teboulle. Interior Gradient and Epsilon-Subgradient Descent Methods for Constrained Convex Minimization. *Mathematics of Operations Research*, **29**, (2004), 1–26.

59. H. Attouch, J. Bolte, P. Redont and M. Teboulle. Singular Riemannian Barrier Methods and Gradient Projected Dynamical Systems for Constrained Optimization. *Optimization*, **53**, (2004), 435–454.
60. J. Kogan, M. Teboulle and C. Nicholas. Data Driven similarity measures for k-means like clustering algorithms. *Information Retrieval*, **8**, (2005), 331–349.
61. A. Auslender and M. Teboulle. Interior projection-like methods for monotone variational inequalities. *Mathematical Programming*, **104**, (2005), 39–68.
62. M. Teboulle and J. Kogan. Deterministic annealing and a kmeans type smoothing optimization algorithm. *SIAM Proceedings of Workshop on Clustering High Dimensional Data and its Applications*, (2005), 13–22.
63. A. Auslender and M. Teboulle. Interior gradient and proximal methods in convex and conic optimization. *SIAM J. Optimization*, **16**, (2006), 697–725.
64. A. Beck and M. Teboulle. A Linearly Convergent Dual-Based Gradient Projection Algorithm for Quadratically Constrained Convex Minimization. *Mathematics of Operations Research*, **31**, (2006), 398–417.
65. M. Teboulle, P. Berkhin, I. Dhillon, Y. Guan, and J. Kogan. Clustering with entropy-like k-means algorithms. In *Grouping Multidimensional Data: Recent Advances in Clustering*, J. Kogan, C. Nicholas, and M. Teboulle, (Eds.), Springer Verlag, NY, (2006), 127–160.
66. A. Beck, A. Ben-Tal and M. Teboulle. Finding a global optimal solution for a quadratically constrained fractional quadratic problem with applications to the regularized total least squares. *SIAM J. Matrix Analysis and Applications*, **28**, (2006), 425–445.
67. M. C. Pinar and M. Teboulle. On semidefinite bounds for maximization of a non-convex quadratic objective over the  $l_1$  unit ball. *RAIRO Operations Research*, **40**, (2006) 253-265.
68. M. Teboulle. A Unified Continuous Optimization Framework to Center-Based Clustering Methods. *Journal of Machine Learning Research*, **8**, (2007), 65-102.
69. A. Auslender, P.J.S. Silva, and M. Teboulle. Nonmonotone Projected Gradient Methods Based on Barrier and Euclidean Distances. *Computational Optimization and Applications*, **38**, (2007), 305-327.
70. A. Ben-Tal and M. Teboulle. An old-new concept of convex risk measures: the optimized certainty equivalent. *Mathematical Finance*, **17**, 449-476 (2007).
71. A. Beck, M. Teboulle, Z. Chikishev. Iterative Minimization Schemes for Solving the Single Source Localization Problem. *SIAM J. Optimization*, **19**, (2008), 1397-1416.
72. Y. Eldar, A. Beck, M. Teboulle. A Minimax Chebyshev Estimator for Bounded Error Estimation. *IEEE Transactions on Signal Processing*, **56**, (2008), 1388-1397.
73. A. Auslender and M. Teboulle. Projected Subgradient Methods with Non-Euclidean Distances for Nondifferentiable Convex Minimization and Variational Inequalities. *Mathematical Programming*, **120**, (2009), 27-48.

74. A. Beck and M. Teboulle. A Convex Optimization Approach for Minimizing the Ratio of Indefinite Quadratic Functions over an Ellipsoid. *Mathematical Programming*, **118**, (2009), 13-35.
75. H. Attouch, R. Cominetti and M. Teboulle Foreword: Special issue on nonlinear convex optimization and variational inequalities *Mathematical Programming, Series B*, **116**, (2009), 1 –3
76. A. Beck and M. Teboulle . Fast Iterative Shrinkage-Thresholding Algorithm for Linear Inverse Problems. *SIAM J. Imaging Sciences*, **2** (2009), 183 – 202.
77. A. Beck and M. Teboulle. Fast Gradient-Based Algorithms for Constrained Total Variation Image Denoising and Deblurring Problems. *IEEE Trans. Image Processing*, vol. 18, no. 11, November 2009, pp. 2419–2434.
78. A. Beck and M. Teboulle. Gradient-Based Algorithms with Applications to Signal Recovery Problems. In *Convex Optimization in Signal Processing and Communications*. Editors: Y. Eldar and D. Palomar, pp. 42–89, 2010. Cambridge University Press.
79. Amir Beck and Marc Teboulle, "On Minimizing Quadratically Constrained Ratio of Two Quadratic Functions", *Journal of Convex Analysis* 17 (2010), No. 3 & 4, 789–804.
80. L.C. Ceng, M. Teboulle and J.C. Yao, " Weak Convergence of an Iterative Method for Pseudomonotone Variational Inequalities and Fixed-Point Problems". *J. Optimization Theory and Applications*, 146, 2010, pp. 19–31.
81. A. Auslender, R. Shefi and M. Teboulle. Moving Balls Approximation Method for Smooth Constrained Minimization. *SIAM J. Optimization*, 20, 2010, pp. 3232-3259.
82. R. Luss and M. Teboulle Convex Approximations to Sparse PCA via Lagrangian Duality. *Operations Research Letters*, 39(1), 2011, pp. 57-61.
83. A. Beck and M. Teboulle A Linearly Convergent Algorithm for Solving a Class of Nonconvex/Affine Feasibility Problems. In *Fixed-Point Algorithms for Inverse Problems in Science and Engineering*, Eds H. Bauschke et al., Springer Optimization and Its Applications, 2011, Volume 49, 33-48.
84. A. Beck, Y. Drori and M. Teboulle A new semidefinite programming relaxation scheme for a class of quadratic matrix problems. *Operations Research Letters*, 40(4), 2012, pp. 298–302.
85. A. Beck and M. Teboulle. Smoothing and First Order Methods: A Unified Framework *SIAM J. Optimization*, 22, 2012, pp. 557–580.
86. R. Luss and M. Teboulle. Conditional Gradient Algorithms for Rank One Matrix Approximations with a Sparsity Constraint. *SIAM Review*, 55, 2013, pp. 65–98.
87. A. Beck and M. Teboulle. A fast dual proximal gradient algorithm for convex minimization and applications. *Operations Research Letters*, 42, 2014, pp. 1–6.
88. Y. Drori and M. Teboulle. Performance of first-order methods for smooth convex minimization: a novel approach. *Mathematical Programming Series A*, 145, 2014, pp. 451-482.



89. A. Beck, A. Nedich, A. Ozdaglar, and M. Teboulle. An  $O(1/k)$  Gradient Method for Network Resource Allocation Problems. *IEEE Transactions on Control of Network Systems*, Volume 1, 2014, pp. 64–73.
90. J. Bolte, S. Sabach and M. Teboulle. Proximal Alternating Linearized Minimization for Nonconvex and Nonsmooth Problems. *Mathematical Programming, Series A*, 146, 2014, pp. 459–494.
91. R. Shefi and M. Teboulle. Rate of Convergence Analysis of Decomposition Methods Based on the Proximal Method of Multipliers for Convex Minimization. *SIAM J. Optimization*, Volume 24, 2014, pp. 269–297.
92. Y. Drori, S. Sabach and M. Teboulle. A simple algorithm for a class of nonsmooth convex—concave saddle-point problems. *Operation Research Letters*, Volume 43, 2015, pp. 209–214.
93. R. Shefi and M. Teboulle. On the Rate of Convergence of the Proximal Alternating Linearized Minimization Algorithm for Convex Problems. *EURO Journal on Computational Optimization*, Volume 4, Issue 1, (2016), pp. 27–46
94. Y. Drori and M. Teboulle. An Optimal Variant of Kelley’s Cutting-Plane Method. *Mathematical Programming, Series A*, Volume 160, Issue 2, (2016), pp. 321–351.
95. A. Beck, S. Sabach and M. Teboulle. An Alternating Semiproximal Method for Nonconvex Regularized Structured Total Least Squares Problems. *SIAM J. on Matrix Analysis and Applications*, 37, no. 3 (2016), pp 1129–1150.
96. R. Shefi and M. Teboulle. A Dual Method for Minimizing a Nonsmooth Objective over one Smooth Inequality Constraint. *Mathematical Programming, Series A*, Volume 159, Issue 1, (2016), pp. 137–164.
97. H. Bauschke, J. Bolte and M. Teboulle. A descent Lemma beyond Lipschitz gradient continuity: first-order methods revisited and applications. *Mathematics of Operations Research*, Vol. 42, (2017), pp. 330–348.
98. R. Luke, S. Sabach, M. Teboulle and K. Zatlaway. A simple globally convergent algorithm for the nonsmooth nonconvex single source localization problem. *Journal of Global Optimization*, Volume 69, issue 4, (2017), pp. 889–909.
99. J. Bolte, S. Sabach and M. Teboulle. Nonconvex Lagrangian-Based Optimization: Monitoring Schemes and Global Convergence *Mathematics of Operations Research*, **43**, (2018), 1210–1232.
100. J. Bolte, S. Sabach, M. Teboulle and Y. Vaisbourd. First order methods beyond convexity and Lipschitz gradient continuity with applications to quadratic inverse problems. *SIAM J. Optimization*, **28**, (2018), 2131–2151.
101. M. Teboulle A simplified view of first order methods for optimization *Mathematical Programming*, **170**, (2018), 67–96.
102. S. Sabach, M. Teboulle and S. Voldman. A smoothing alternating minimization-based algorithm for clustering with sum-min of Euclidean norms. *Pure Applied Functional Analysis*, 3(4), (2018), pp. 653–679.

103. H. Bauschke, J. Bolte, C. Jiawei, M. Teboulle, and X. Wang. On Linear Convergence of Non-Euclidean Gradient Methods without Strong Convexity and Lipschitz Gradient Continuity. *Journal of Optimization Theory and Applications*, **182**, (2019), 1068–1087.
104. N. Hallak and M. Teboulle. A non-Euclidean gradient descent method with sketching for unconstrained matrix minimization. *Operations Research Letters*, **47**, (2019), 421–426.
105. D. R. Luke, S. Sabach and M. Teboulle. Optimization on Spheres: Models and Proximal Algorithms with Computational Performance Comparisons. *SIAM J. Mathematics of Data Science*, **1**, (2019) 408–445.
106. S. Sabach and M. Teboulle. Lagrangian Methods for Composite Optimization. *Handbook of Numerical Analysis*, **20**, (2019), 401-436.
107. D. R. Luke, M. Teboulle, and N. Thao. Necessary conditions for linear convergence of iterated expansive, set-valued mappings. *Mathematical Programming*, **180**, (2020), 1–31.
108. M. Teboulle and Y. Vaisbourd. Novel Proximal Gradient Methods for Nonnegative Matrix Factorization with Sparsity Constraints. *SIAM J. Imaging Sciences*, **13**, (2020), 381–421.