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253. "After-tax portfolio optimization," preprint 2018 (by J.C. Dermody and R. T. Rockafellar).
252. "Reaching equilibrium by bilateral trades based on marginal utility," preprint 2018. (by A. Jofré and R. T. Rockafellar).
251. "Variational convexity and the local monotonicity of subgradient mappings," submitted to Vietnam Journal of Mathematics in honor of A.D. Ioffe's 80th birthday.
250. "Risk and utility in the duality framework of convex analysis," submitted to the Jon Borwein Memorial volume in 2018. (by R. T. Rockafellar).
249. "Minimizing buffered probability of exceedance by progressive hedging," submitted to Math. Programming B in 2018 (by R. T. Rockafellar and S. Uryasev).
248. "Solving Lagrangian variational inequalities with applications to stochastic programming," submitted to Math. Programming B in 2018 (by R. T. Rockafellar and J. Sun).
247. "Progressive decoupling of linkages in monotone variational inequalities, submitted 2017 (by R. T. Rockafellar).
246. "On the stability and evolution of economic equlibrium," Economic Theory, submitted (by A. Jofré, R. T. Rockafellar and R. J-B Wets).
245. "Radius theorems for monotone mappings," Set-valued and Variational Analysis, accepted (by A. D. Dontchev, A. Eberhard and R. T. Rockafellar).
244. "Variational analysis of Nash equilibrium," Vietnam Journal of Mathematics 46 (2017), 73–85. (by R. T. Rockafellar).
243. "Problem decomposition in block-separable convex optimization: ideas old and new," *Proceedings of Conference on Nonlinear Analysis and Optimization,* Niigata, Japan, 2016.
242. "Solving monotone stochastic variational inequalities and complementarity problems by progressive hedging," Mathematical Programming B, accepted (by R. T. Rockafellar and J. Sun).
241. "Solving stochastic programming problems with risk measures by progessive hedging," *Set-valued and Variational Analysis,* published online 2017 (by R. T. Rockafellar).
240. "Superquantile/CVaR risk measures: second-order theory," Annals of Operations Research 262 (2018), 3–29. (by R. T. Rockafellar and J. O. Royset).
239. "Convexity and reliability in engineering optimization," Proceedings of the 9th Internationsl Converence on Nonlinear Analysis and Convex Analysis (Chiang Rai, Thailand, 2015), 1–10 (by R. T. Rockafellar).
238. "Stochastic variational inequalities: single-stage to multistage," Mathematical Programming B 165 (2017), 291–330. (by R. T. Rockafellar and R. J-B Wets).
237. "Importance sampling in the evaluation and optimization of buffered probability of failure," Proc. 12th Internationsl Converence on Applications of Statistics and Probability in Civil Engineering (ICASP), Vancouver (2015), DOI=http://dx.doi.org/10.14288/1.0076214 (by M. M. Harajli, R. T. Rockafellar and J. O. Royset).
236. "Measures of residual risk with connections to regression, risk tracking, surrogate models and ambiguity," SIAM Journal of Optimization 25 (2015), 1179–1208. (by R. T. Rockafellar and J. O. Royset).
235. "Risk measures in engineering design under uncertainty," Proc. 12th Internationsl Converence on Applications of Statistics and Probability in Civil Engineering (ICASP), Vancouver (2015), DOI=http://dx.doi.org/10.1428 (by R. T. Rockafellar and J. O. Royset).
234. **Implicit Functions and Solution Mappings: A View From Variational Analysis**, second edition. Springer Series in Operations Research and Financial Engineering, 2014. (First edition: 2009)
233. "Second-Order variational analysis and its role in optimization," Proceedings of the 8th International Conference on Nonlinear Analysis and Convex Analysis (Hirosaki, Japan, 2013) (by R. T. Rockafellar).

232. “The convex analysis of random variables,” Proceedings of the Third Asian Conference on Nonlinear Analysis and Optimization (Matsue, Japan, 2012); Yokohama Publishers, 2014, 277–286 (by R. T. Rockafellar).
231. “Engineering decisions under risk-averseness,” Journal of Risk and Uncertainty in Engineering Systems, Part A: Civil Engineering 1 (2015), No. 2, 04015005, DOI=10.1061/AJRUA6.0000816 (by R. T. Rockafellar and J. O. Royset).
230. “Superquantiles and their applications to risk, random variables, and regression,” Tutorials in Operations Research INFORMS 2013, 151–167 (by R. T. Rockafellar and J. O. Royset).
229. “Full stability in finite-dimensional optimization,” Mathematics of Operations Research 40 (2015), 226–252 (by B. S. Mordukhovich, T. T. A. Nghia and R. T. Rockafellar).
228. “Convex analysis and financial equilibrium,” Mathematical Programming B 148 (2014), 223–240 (by A. Jofré, R. T. Rockafellar and R. J-B Wets).
227. “Superquantile regression with applications to buffered reliability, uncertainty quantification and conditional value-at-risk,” European J. Operations Research 234 (2014), 140–154 (by R. T. Rockafellar, J. O. Royset and S. I. Miranda).
226. “Random variables, monotone relations and convex analysis,” Mathematical Programming B 148 (2014), 297–331. (by R. T. Rockafellar and J. O. Royset).
225. “Characterizations of full stability in constrained optimization,” SIAM J. Optimization 23 (2013), 1810–1849 (by B. S. Mordukhovich, R. T. Rockafellar and M. E. Sarabi).
224. “Convex-concave-convex distributions in application to CDO pricing,” Computational Management Science (2013), 1–24 (by A. Veremyev, P. Tsyurmasto, S. Uryasev, R. T. Rockafellar).
223. “Direct proof of the shift stability of equilibrium in classical circumstances,” Economics Letters, submitted (by A. Jofré, R. T. Rockafellar and R. J-B Wets).
222. “An Euler-Newton continuation method for tracking solution trajectories of parametric variational inequalities,” SIAM J. Control and Opt. 51 (2013), 1823–1840 (by A. L. Dontchev, M. Krastanov, R. T. Rockafellar and V. Veliov).
221. “Applications of convex variational analysis to Nash equilibrium,” Proceedings of the 7th International Conference on Nonlinear Analysis and Convex Analysis -II- (Busan, Korea, 2011), 173–183 (by R. T. Rockafellar).
220. “Second-order subdifferential calculus with applications to tilt stability in optimization,” SIAM J. Optimization 22 (2012), 953–986 (by B. S. Mordukhovich and R. T. Rockafellar).
219. “The robust stability of every equilibrium in economic models of exchange even under relaxed standard conditions” (October 25, 2013) (by A. Jofré, R. T. Rockafellar and R. J-B Wets). Available at SSRN: https://ssrn.com/abstract=2462975 or http://dx.doi.org/10.2139/ssrn.2462975.
218. “The fundamental risk quadrangle in risk management, optimization and statistical estimation,” Surveys in Operations Research and Management Science 18 (2013), 33–53 (by R. T. Rockafellar and S. Uryasev).
217. “Calibrating risk preferences with generalized CAPM based on mixed CVaR deviation,” Journal of Risk 15 (2012), 45–70 (by K. Kalinchenko, R. T. Rockafellar, S. Uryasev).
216. “Convergence of inexact Newton methods for generalized equations,” Math. Programming B 139 (2013), 115–137 (by A. L. Dontchev and R. T. Rockafellar).
215. “Parametric stability of solutions to problems of economic equilibrium,” Convex Analysis 19 (2012), 975–997 (by A. L. Dontchev and R. T. Rockafellar).
214. “A computational study of the buffered failure probability in reliability-based design optimization,” Proceedings of the 11th Conference on Application of Statistics and Probability in Civil Engineering, Zurich, Switzerland, 2011 (by H. G. Basova, R. T. Rockafellar and J. O. Royset).
213. “General economic equilibrium with financial markets and retainability,” Economic Theory 63 (2017), 309–345 (by A. Jofré, R. T. Rockafellar and R. J-B Wets).
212. “A time-embedded approach to economic equilibrium with incomplete markets,” Advances in Mathematical Economics 14 (2011), 183–196 (by A. Jofré, R. T. Rockafellar and R. J-B Wets).

211. “On buffered failure probability in design and optimization of structures,” J. Reliability Engineering & System Safety 95 (2010), 499–510 (by R. T. Rockafellar and J. O. Royset).

210. “A calculus of prox-regularity,” J. Convex Analysis 17 (2010), 203–220 (by R. Poliquin and R. T. Rockafellar).

209. “Saddle points of Hamiltonian trajectories in mathematical economics,” Control and Cybernetics 4 (2009), 1575–1588 (by R. T. Rockafellar).

208. **Implicit Functions and Solution Mappings**, Monographs in Math., Springer-Verlag, 2009 (375 pages) (by A. D. Dontchev and R. T. Rockafellar).

207. “Newton’s method for generalized equations: a sequential implicit function theorem,” Math. Programming (Ser. B) 123 (2010), 139–159 (by A. L. Dontchev and R. T. Rockafellar).

206. “Coherent approaches to risk in optimization under uncertainty,” Tutorials in Operations Research INFORMS 2007, 38–61 (by R. T. Rockafellar).

205. “Risk tuning with generalized linear regression,” Math. of Operations Research 33 (2008), 712–729. (by R. T. Rockafellar, S. Uryasev and M. Zabarankin).

204. “Linear-convex control and duality,” in Advances in Mathematics for Applied Sciences 76 (2008), 280–299 (by R. Goebel and R. T. Rockafellar).

203. “Local strong convexity and local Lipschitz continuity of the gradients of convex functions,” Convex Analysis 15 (2008), 263–270 (by R. Goebel and R. T. Rockafellar).

202. “Parametrically robust optimality in nonlinear programming,” Applied and Computational Math. 5 (2006), 59–65 (by A. L. Dontchev and R. T. Rockafellar).

201. “Robinson’s implicit function theorem and its extensions,” Math. Programming (Ser. B) 117 (2009), 129–147 (by A. L. Dontchev and R. T. Rockafellar).

200. “Equilibrium with investors using a diversity of deviation measures,” Journal of Banking and Finance 31 (2007), 3251–3268 (by R. T. Rockafellar, S. Uryasev and M. Zabarankin).

199. “Variational inequalities and economic equilibrium,” Math. of Operations Research 32 (2007), 32–50 (by A. Jofré, R. T. Rockafellar and R. J-B Wets).

198. “Optimality conditions in portfolio analysis with general deviation measures,” Math. Programming, Ser. B, 108 (2006), 515–540 (by R. T. Rockafellar, S. Uryasev and M. Zabarankin).

197. “Moreau’s proximal mappings and convexity in Hamilton-Jacobi theory,” in *Nonsmooth Mechanics and Analysis: Theoretical and Numerical Advances* (P. Alart, O. Maisonneuve and R. T. Rockafellar, eds.), Springer, 2005, 3–12 (by R. T. Rockafellar).

196. **Nonsmooth Mechanics and Analysis: Theoretical and Numerical Advances**, edited conference volume (by P. Alart, O. Maisonneuve and R. T. Rockafellar), Springer-Verlag, 2005.

195. “Master funds in portfolio analysis with general deviation measures,” Journal of Banking and Finance 30 (2005), 743-778 (by R. T. Rockafellar, S. Uryasev and M. Zabarankin).

194. “A variational inequality scheme for determining an economic equilibrium of classical or extended type,” in *Variational Analysis and Applications* (F. Giannessi and A. Maugeri, eds.), Springer, 2005, 553–578 (by A. Jofré, R. T. Rockafellar and R. J-B Wets).

193. “Hamilton-Jacobi theory and parametric analysis in fully convex problems of optimal control,” J. Global Optimization 28 (2004), 419–431 (by R. T. Rockafellar).

192. “Generalized deviations in risk analysis,” Finance and Stochastics 10 (2006), 51–74 (by R. T. Rockafellar, S. Uryasev and M. Zabarankin).

191. “Regularity properties and conditioning in variational analysis and optimization,” Set-Valued Analysis 12 (2004), 79–109 (by A. Dontchev and R. T. Rockafellar).

190. “Some properties of piecewise smooth functions,” Computational Optim. and Appl. 25 (2003), 247–250 (by R. T. Rockafellar).

189. “Envelope representations in Hamilton-Jacobi theory for fully convex problems of control,” Proc. 40th IEEE Conf. on Decisions and Control (Orlando, Florida), 2768–2771 (by R. T. Rockafellar and P. R. Wolenski).

188. “Duality and dynamics in Hamilton-Jacobi theory for fully convex problems of control,” Proc. 40th IEEE Conf. on Decisions and Control (Orlando, Florida), 2763–2767 (by R. T. Rockafellar and P. R. Wolenski).
187. “Conditional value-at-risk for general loss distributions,” J. Banking and Finance 26 (2002), 1443–1471 (by R. T. Rockafellar abd S. Uryasev).
186. “Variational geometry and equilibrium,” in *Nonconvex Optimization and its Applications* (P. Daniele, F. Giannessi and A. Maugeri, eds.), Kluwer, 2003 (by M. Patriksson and R. T. Rockafellar).
185. “Convex analysis in the calculus of variations,” in *Advances in Convex Analysis and Global Optimization* (N. Hadjisavvas and P. M. Pardalos, eds.), Kluwer, 2001, 135–152 (by R. T. Rockafellar).
184. “Sensitivity analysis of aggregated variational inequality problems, with application to traffic equilibria,” Transportation Science 37 (2003), 56–68 (by M. Patriksson and R. T. Rockafellar).
183. “Generalized conjugacy in Hamilton-Jacobi theory for fully convex Lagrangians,” Convex Analysis 9 (2002), 463–474 (by R. Goebel and R. T. Rockafellar).
182. “A mathematical model and descent algorithm for bilevel traffic management,” Transportation Science 36 (2002), 271-291 (by M. Patriksson and R. T. Rockafellar).
181. “Graphical convergence of sums of monotone mappings,” Proc. Amer. Math. Soc. 130 (2002), 2261–2269 (by T. Pennanen, R. T. Rockafellar and M. Théra).
180. “The radius of metric regularity,” Trans. Amer. Math. Soc. 355 (2002), 493–517 (by A. L. Dontchev, A. S. Lewis and R. T. Rockafellar).
179. “Optimization of conditional value-at-risk,” Journal of Risk 2 (2000), No. 3, 21–42 (by R. T. Rockafellar and S. Uryasev).
178. “Primal-dual solution perturbations in convex optimization,” Set-Valued Analysis 9 (2001), 49–65 (by A. L. Dontchev and R. T. Rockafellar).
177. “Ample parameterization of variational inclusions,” SIAM J. Optim. 12 (2002), 170–187 (by A. L. Dontchev and R. T. Rockafellar).
176. “Second-order convex analysis,” J. of Nonlin. & Convex Analysis 1 (1999), 1–16 (by R. T. Rockafellar).
175. “Extended nonlinear programming,” in *Nonlinear Optimization and Related Topics* (G. Di Pillo and F. Giannessi, eds.), Kluwer, 1999, 381–399 (by R. T. Rockafellar).
174. “Stability of locally optimal solutions,” SIAM J. Optim. 10 (2000), 580–604 (by A. B. Levy, R. A. Poliquin and R. T. Rockafellar).
173. “Duality and optimality in multistage stochastic programming,” Annals of Operations Research 85 (1999), 1–19 (by R. T. Rockafellar).
172. “Convexity in Hamilton-Jacobi theory 2: envelope representations,” SIAM J. Control Opt. 40 (2001), 1351–1372 (by R. T. Rockafellar and P. R. Wolenski).
171. “Convexity in Hamilton-Jacobi theory 1: dynamics and duality,” SIAM J. Control Opt. 40 (2001), 1323–1350 (by R. T. Rockafellar and P. R. Wolenski).
170. “Local differentiability of distance functions,” Transactions Amer. Math. Soc. 352 (2000), 5231–5241 (by R. A. Poliquin, R. T. Rockafellar and L. Thibault).
169. **Variational Analysis**, *Grundlehren der Mathematischen Wissenschaften 317*, Springer-Verlag, 1997 (733 pages) (by R. T. Rockafellar and R. J-B Wets). Second printing 2005 (incorporating many additions and corrections to the original). Third printing 2009 (incorporating many further changes).
168. “Proto-derivatives of partial subgradient mappings,” J. Convex Analysis 4 (1997), 221–234 (by R. A. Poliquin and R. T. Rockafellar).
167. “Tilt stability of a local minimum,” SIAM J. Optim. 8 (1998) 287–299 (by R. A. Poliquin and R. T. Rockafellar).
166. “Characterizations of lipschitzian stability in nonlinear programming,” in *Mathematical Programming With Data Perturbations* (A. V. Fiacco, ed.), Marcel Dekker, New York, 1997, 65–82 (by A. Dontchev and R. T. Rockafellar).

165. "A derivative-coderivative inclusion in second-order nonsmooth analysis," Set-Valued Analysis 5 (1997), 1–17 (by R. T. Rockafellar and D. Zagrodny).

164. "Bolza problems with general time constraints," SIAM J. Control Opt. 35 (1997), 2050–2069 (by P.D. Loewen and R. T. Rockafellar).

163. "Proto-derivatives and the geometry of solution mappings in nonlinear programming," in *Nonlinear Optimization and Applications* (G. Di Pillo and F. Giannessi, eds.), Plenum, New York, 1996, 249–260 (by A. Levy and R. T. Rockafellar).

162. "Convergence rates in forward-backward splitting," SIAM J. Optim. 7 (1997), 421–444 (by G. H.-G. Chen and R. T. Rockafellar).

161. "Characterizations of strong regularity for variational inequalities over polyhedral convex sets," SIAM J. Optim. 6 (1996), 1087–1105 (by A. L. Dontchev and R. T. Rockafellar).

160. "Second-order nonsmooth analysis in nonlinear programming," in *Recent Advances in Optimization* (D. Du, L. Qi and R. Womersley, eds.), World Scientific Publishers, 1995, 322–350 (by R. A. Poliquin and R. T. Rockafellar).

159. "Sensitivity of solutions in nonlinear programming problems with nonunique multipliers," in *Recent Advances in Optimization* (D. Du, L. Qi and R. Womersley, eds.), World Scientific Publishers, 1995, 215–223 (by A. B. Levy and R. T. Rockafellar).

158. "Generalized Hessian properties of regularized nonsmooth functions," SIAM J. Optim. 6 (1996), 1121–1137 (by R. A. Poliquin and R. T. Rockafellar).

157. "Prox-regular functions in variational analysis," Trans. Amer. Math. Soc. 348 (1996), 1805–1838 (by R. Poliquin and R. T. Rockafellar).

156. "New necessary conditions for the generalized problem of Bolza," SIAM J. Control Opt. 34 (1996), 1496–1511 (by P. D. Loewen and R. T. Rockafellar).

155. "Equivalent subgradient versions of Hamiltonian and Euler-Lagrange equations in variational analysis," SIAM J. Control Opt. 34 (1996), 1300–1315 (by R. T. Rockafellar.

154. "Monotone relations and network equilibrium," in *Variational Inequalities and Network Equilibrium Problems* (F. Giannessi and A. Maugeri, eds.), Plenum, London, 1994, 271–288 (by R. T. Rockafellar).

153. "Nonsmooth optimization," in *Mathematical Programming: The State of the Art 1994* (J. R. Birge and K. G. Murty, eds.), Univ. of Michigan Press, 1994, 248–258 (by R. T. Rockafellar).

152. "The Euler and Weierstrass conditions for nonsmooth variational problems," Calculus of Variations & PDE 4 (1996), 59-87 (by A. D. Ioffe and R. T. Rockafellar).

151. "Variational conditions and the proto-differentiation of partial subgradient mappings," Nonlinear Anal. Th. Meth. Appl. 26 (1996), 1951–1964 (by A. Levy and R. T. Rockafellar).

150. "Sensitivity analysis of solutions to generalized equations," Trans. Amer. Math. Soc. 345 (1994), 661–671 (by A. Levy and R. T. Rockafellar).

149. "Basic issues in Lagrangian optimization," in *Optimization in Planning and Operation of Electric Power Systems* (K. Frauendorfer, H. Glavitsch and R. Bacher, eds.), Physica-Verlag, Heidelberg, 1993, 3–30 (by R. T. Rockafellar).

148. "Extended linear-quadratic programming," SIAG/OPT Views-and-News, No. 1 (Fall, 1992), 3–6 (by R. T. Rockafellar).

147. "Lagrange multipliers and optimality," SIAM Review 35 (1993), 183–238.

145. "Proto-derivative formulas for basic subgradient mappings in mathematical programming," Set-Valued Analysis 2 (1994), 275–290 (by R. A. Poliquin and R. T. Rockafellar).

145. "Mathematics of debt instrument taxation," Financial Markets, Institutions and Instruments 3 (1994), 1–87 (by J. C. Dermody and R. T. Rockafellar).

144. "Subgradients and variational analysis," The Mathematics Student 62 (1993), 113–131.

143. "Amenable functions in optimization," in *Nonsmooth Optimization Methods and Applications* (F. Giannessi, ed.), Gordon and Breach, Philadelphia, 1992, 338–353 (with R. A. Poliquin and R. T. Rockafellar).

142. "Dualization of subgradient conditions for optimality," Nonlin. Analysis Th. Meth. Appl. 20 (1993), 627–646 (by R. T. Rockafellar).

141. "A calculus of epi-derivatives applicable to optimization," Canadian J. Math. 45 (1993), 879–896 (by R. A. Poliquin and R. T. Rockafellar).

140. "Optimal control of unbounded differential inclusions," SIAM J. Control Opt. 32 (1994), 442–470 (by P. D. Loewen and R. T. Rockafellar).

139. "Tax basis and nonlinearity in cash stream valuation," Math. Finance 5 (1995), 97-119 (by J. C. Dermody and R. T. Rockafellar).

138. "Cosmic convergence," in *Optimization and Nonlinear Analysis* (A. Ioffe et al., eds.), Pitman Research Notes in Math. Series No. 244, Wiley, 1992, 249–272 (by R. T. Rockafellar and R. J-B Wets).

137. "A characterization of epi-convergence in terms of convergence of level sets," Proceedings Amer. Math. Soc. 116 (1992), 753–761 (by G. Beer, R. T. Rockafellar and R. J-B Wets).

136. "On a special class of convex functions," J. Optim. Theory Appl. 70 (1991), 91 (by R. T. Rockafellar).

135. "A dual strategy for the implementation of the aggregation principle in decision making under uncertainty," J. Applied Stochastic Models and Data Analysis 8 (1992), 245–255 (by R. T. Rockafellar and R. J-B Wets).

134. "Primal-dual projected gradient algorithms for extended linear-quadratic programming," SIAM J. Optimization 3 (1993), 751–783 (by R. T. Rockafellar and C.-Y. Zhu).

133. "Asymptotic theory for solutions in generalized M-estimation and stochastic programming," Math. of Operations Research 18 (1993), 148–162 (by A. J. King and R. T. Rockafellar).

132. "Cash stream valuation in the face of transaction costs and taxes," Math. Finance 1 (1991), 31–54 (by J. C. Dermody and R. T. Rockafellar).

131. "Large-scale extended linear-quadratic programming and multistage optimization," in *Advances in Numerical Partial Differential Equations and Optimization* (S. Gomez, J.-P. Hennart, R. Tapia, eds.), SIAM Publications, 1991, 247–261 (by R. T. Rockafellar).

130. "The adjoint arc in nonsmooth optimization," Trans. Amer. Math. Soc. 325 (1991), 39–72 (by P. D. Loewen and R. T. Rockafellar).

129. "Nonsmooth analysis and parametric optimization," in *Methods of Nonconvex Analysis* (A. Cellina, ed.), Springer-Verlag Lecture Notes in Math. No. 1446 (1990), 137–151 (by R. T. Rockafellar).

128. "Sensitivity analysis for nonsmooth generalized equations," Math. Programming 55 (1992), 193–212 (by A. J. King and R. T. Rockafellar).

127. "Hamiltonian trajectories and duality in the optimal control of linear systems with convex costs," SIAM J. Control Opt. 27 (1989), 1007–1025 (by R. T. Rockafellar).

126. "Perturbation of generalized Kuhn-Tucker points in finite-dimensional optimization," in *Nonsmooth Optimization and Related Topics*, F. H. Clarke et al. (eds.), Plenum Press, 1989, 393-402 (by R. T. Rockafellar).

125. "Computational schemes for large-scale problems in extended linear-quadratic programming," Math. Programming 48 (1990), 447–474 (by R. T. Rockafellar).

124. "An internal variable theory of elastoplasticity based on the maximum plastic work inequality," Quart. Appl. Math. 47 (1990), 59–83 (by R. A. Eve, B. D. Reddy and R. T. Rockafellar).

123. "Generalized second derivatives of convex functions and saddle functions," Trans. Amer. Math. Soc. 322 (1990), 51–77 (by R. T. Rockafellar).

122. "A simplex-active-set algorithm for piecewise quadratic programming" in *Advances in Optimization and Approximation* (D.-Z. Du and J. Sun, eds.), Kluwer, 1994, 275–292 (by R. T. Rockafellar and J. Sun).

121. "Proto-differentiability of set-valued mappings and its applications in optimization," in *Analyse Non Linéaire*, H. Attouch et al. (eds.), Gauthier-Villars, Paris, 1989, 449–482 (by R. T. Rockafellar).

120. "Scenarios and policy aggregation in optimization under uncertainty," Math. of Oper. Res. 16 (1991), 119–147 (by R. T. Rockafellar and R. J-B Wets).

119. "On the essential boundedness of solutions to problems in piecewise linear-quadratic optimal control," in *Analyse Mathématique et Applications*, F. Murat and O. Pironneau (eds.), Gauthier-Villars, Paris, 1988, 437–444 (by R. T. Rockafellar).

118. "Multistage convex programming and discrete-time optimal control," Control and Cybernetics 17 (1988), 225–246 (by R. T. Rockafellar).

117. "Generalized linear-quadratic problems of deterministic and stochastic optimal control in discrete time," SIAM J. Control Opt. 28 (1990), 810–822 (by R. T. Rockafellar and R. J-B Wets).

116. "Second-order optimality conditions in nonlinear programming obtained by way of epi-derivatives," Math. of Op. Res. 14 (1989), 462–484 (by R. T. Rockafellar).

115. "First and second-order epi-differentiability in nonlinear programming," Trans. Amer. Math. Soc. 307 (1988), 75–108 (by R. T. Rockafellar).

114. "A generalized approach to linear-quadratic programming," Proceedings Internat'l Conf. on Numerical Optimization and Appl. (Xi'an, China, 1986), 58–63 (by R. T. Rockafellar).

113. "Linear-quadratic programming and optimal control," SIAM J. Control and Opt. 25 (1987), 781–814 (by R. T. Rockafellar).

112. "Lake eutrophication management: the Lake Balaton project," in *Numerical Techniques for Stochastic Optimization Problems*, Y. Ermoliev and R. J-B Wets (eds.), Springer-Verlag, 1987, 435–448 (by A. King, R. T. Rockafellar, L. Somlyody and R. J-B Wets).

111. "A note about projections in the implementation of stochastic quasi-gradient methods," in *Numerical Techniques for Stochastic Optimization Problems*, Y. Ermoliev and R. J-B Wets (eds.), Springer-Verlag, 1987, 385–392 (by R. T. Rockafellar and R. J-B Wets).

110. "Linear-quadratic problems with stochastic penalties: the finite generation algorithm," in *Stochastic Optimization* , V. I. Arkin, A. Shiraev and R. J-B Wets (eds.), Springer-Verlag Lecture Notes in Control and Information Sciences No. 81, 1987, 545-560 (by R. T. Rockafellar and R. J-B Wets).

109. "Optimization: A case for the development of new mathematical concepts," J. Computational and Appl. Math. 22 (1988), 243–255 (by R. T. Rockafellar).

108. "A Lagrangian finite generation technique for solving linear-quadratic problems in stochastic programming," Math. Programming Studies 28 (1986), 63–93 (by R. T. Rockafellar and R. J-B Wets).

107. "Lipschitzian properties of multifunctions," Nonlin. Analysis Th. Meth. Appl. 9 (1985), 867–885 (by R. T. Rockafellar).

106. "Lipschitzian stability in optimization: the role of nonsmooth analysis," in *Nondifferentiable Optimization: Motivations and Applications*, V. Demyanov and D. Pallatschke (eds.), Springer-Verlag Lecture Notes in Economics and Math. Systems No. 255, 1985, 55–73 (by R. T. Rockafellar).

105. "Monotropic programming: a generalization of linear programming and network programming," in *Convexity and Duality in Optimization*, J. Ponstein (ed.), Springer-Verlag Lecture Notes in Economics and Math. Systems, No. 256, 1985, 10–36 (by R. T. Rockafellar).

104. "Maximal monotone relations and the second derivatives of nonsmooth functions," Ann. Inst. H. Poincaré Analyse Non Linéaire 2 (1985), 167–184 (by R. T. Rockafellar).

103. "Extensions of subgradient calculus with applications to optimization," Nonlin. Analysis: Th. Meth. Appl. 9 (1985), 665–698 (by R. T. Rockafellar).

102. **Network Flows and Monotropic Optimization**, Wiley-Interscience, 1984 (610 pages). Republished by Athena Scientific, 1998.

101. "Variational systems: an introduction," in *Multifunctions and Integrands*, G. Salinetti (ed.), Springer-Verlag Lecture Notes in Math. No. 1091, 1984, 1–54 (by R. T. Rockafellar and R. J-B Wets).

100. "Automatic step sizes for the descent algorithms in monotropic programming," in *Mathematical Programming*, R.W. Cottle et al. (eds.), Elsevier (North-Holland), 1984, 337–346 (by R. T. Rockafellar).

99. "Directional differentiability of the optimal value function in a nonlinear programming problem," Math. Programming Studies 21 (1984), 213–226 (by R. T. Rockafellar).

98. “Differentiability properties of the minimum value in an optimization problem depending on parameters,” *Proceedings of the International Congress of Mathematicians*, Warsaw, 1983, 1419–1423 (by R. T. Rockafellar).

97. “A dual solution procedure for quadratic stochastic programming problems with simple recourse,” in *Numerical Methods*, V. Pereyra and A. Reinoza (eds.), Springer-Verlag Lecture Notes in Math., No. 1005, 1983, 252–265 (by R. T. Rockafellar and R. J-B Wets).

96. “Generalized subgradients in mathematical programming,” in *Math. Programming Bonn 1982 — The State of the Art*, A. Bachem, M. Groetschel and B. Korte (eds.), Springer-Verlag, 1983, 368–380 (by R. T. Rockafellar).

95. “Marginal values and second-order conditions for optimality,” Math. Programming 26 (1983), 245–286 (by R. T. Rockafellar).

94. “Deterministic and stochastic optimization problems of Bolza type in discrete time,” Stochastics 10 (1983), 273–312 (by R. T. Rockafellar and R. J-B Wets).

93. “On the interchange of subdifferentiation and conditional expectation for convex functionals,” Stochastics 7 (1982), 172–182 (by R. T. Rockafellar and R. J-B Wets).

92. “Favorable classes of Lipschitz continuous functions in subgradient optimization,” in *Progress in Nondifferentiable Optimization*, E. Nurminski (ed.), IIASA Collaborative Proceedings Series, International Institute of Applied Systems Analysis, Laxenburg, Austria, 1982, 125–144 (by R. T. Rockafellar).

91. “Lagrange multipliers and subderivatives of optimal value functions in nonlinear programming,” Math. Programming Study 17 (1982), 28–66 (by R. T. Rockafellar).

90. “Generalized subgradients in nonconvex programming,” in *Math. Methods in Operations Research*, A. Dontchev (ed.), Sofia, 1981, 103–110 (by R. T. Rockafellar).

89. “Optimality conditions for convex control problems with nonnegative states and the possibility of jumps,” in *Game Theory and Math. Economics*, O. Moeschlin (ed.), North-Holland, 1981, 339–349 (by R. T. Rockafellar).

88. “Monotropic programming: descent algorithms and duality,” in *Nonlinear Programming 4*, O.L. Mangasarian (ed.), Academic Press, 1981, 327–366 (by R. T. Rockafellar).

87. “Proximal subgradients, marginal values, and augmented Lagrangians in nonconvex optimization,” Math. of Op. Res. 6 (1981), 427–437 (by R. T. Rockafellar).

86. “Almost sure existence of Lagrangian price vectors in nonlinear programming,” in *Math. Programming and its Applications*, C. Castellani and P. Mazzolini (eds.), Angeli, Milan, 1981, 255–262 (by R. T. Rockafellar).

85. **The Theory of Subgradients and its Applications to Problems of Optimization: Convex and Nonconvex Functions**, Helderman-Verlag, Berlin, 1981 (107 pages) (by R. T. Rockafellar). English version of [82].

84. “Generalized directional derivatives and subgradients of nonconvex functions,” Canadian J. Math. 32 (1980), 157–180 (by R. T. Rockafellar).

83. “Lagrange multipliers and variational inequalities,” in *Variational Inequalities and Complementarity Problems*, R. W. Cottle, F. Giannessi and J.L. Lions (eds.), Wiley, 1980, 303–322 (by R. T. Rockafellar).

82. **La Théorie des Sous-Gradients et Ses Applications à l’Optimisation: Fonctions Convexes et Non Convexes**, Collection Chaire Aisenstadt, Presses de l’Université de Montréal, 1979 (130 pages) (by R. T. Rockafellar).

81. “The generic nature of optimality conditions in nonlinear programming,” Math. of Oper. Res. 4 (1979), 425–430 (by R. T. Rockafellar).

80. “Directionally Lipschitzian functions and subdifferential calculus,” Proc. London Math. Soc. 39 (1979), 331–355 (by R. T. Rockafellar).

79. “Convex processes and Hamiltonian dynamical systems,” in *Convex Analysis and Math. Economics*, J. Kreins (ed.), Springer-Verlag Lecture Notes in Math. Econ. No. 168, 1979, 122–136 (by R. T. Rockafellar).

78. "Clarke's tangent cones and the boundaries of closed sets in R^n," Nonlin. Analysis: Th. Meth. Appl. 3 (1979), 145–154 (by R. T. Rockafellar).

77. "Duality in optimal control," in *Mathematical Control Theory*, W. A. Coppel (ed.), Springer-Verlag Lecture Notes in Math. No. 680, 1978, 219–257 (by R. T. Rockafellar).

76. "Monotone operators and augmented Lagrangian methods in nonlinear programming," in *Nonlinear Programming 3*, O. L. Mangasarian et al. (eds.), Academic Press, 1978, 1–25 (by R. T. Rockafellar).

75. "Higher derivatives of conjugate convex functions," Int. J. Applied Analysis 1 (1977), 41–43 (by R. T. Rockafellar).

74. "The optimal recourse problem in discrete time: $\mathcal{L}^\infty$-multipliers for inequality constraints," SIAM J. Control 16 (1978), 16–36 (by R. T. Rockafellar and R. J-B Wets).

73. "Integral functionals, normal integrands and measurable selections," in *Nonlinear Operators and the Calculus of Variations*, L. Waelbroeck (ed.), Lecture notes in Math. No. 543, Springer-Verlag, 1976, 157–207 (by R. T. Rockafellar).

72. "Dual problems of Lagrange for arcs of bounded variation," in *Calculus of Variations and Control Theory*, D. L. Russell (ed.), Academic Press, 1976, 155–192 (by R. T. Rockafellar).

71. "Augmented Lagrangians and applications of the proximal point algorithm in convex programming," Math. of Oper. Res. 1 (1976), 97–116 (by R. T. Rockafellar).

70. "Measures as Lagrange multipliers in multistage stochastic programming," J. Math. Analysis Appl. 60 (1977), 301–313 (by R. T. Rockafellar).

69. "A growth property in concave-convex Hamiltonian systems," J. Econ. Theory 12 (1976), 191–196 (by R. T. Rockafellar).

68. "Nonanticipativity and $\mathcal{L}^1$-martingales in stochastic optimization problems," in *Stochastic Systems: Modeling, Identification, and Optimization*, Math. Programming Study 6 (1976), 170–187 (by R. T. Rockafellar).

67. "Lagrange multipliers in optimization," *SIAM-AMS Proceedings*, Vol. 9, R. W. Cottle and C. E. Lemke (eds.), 1976, 145–168 (by R. T. Rockafellar).

66. "Monotone operators and the proximal point algorithm," SIAM J. Control Opt. 14 (1976), 877–898 (by R. T. Rockafellar).

65. "Stochastic convex programming: relatively complete recourse and induced feasibility," SIAM J. Control Opt. 14 (1976), 547–589 (by R. T. Rockafellar and R. J-B Wets).

64. "Semigroups of convex bifunctions generated by Lagrange problems in the calculus of variations," Math. Scandinavica 36 (1975), 137–158 (by R. T. Rockafellar).

63. "Saddle points of Hamiltonian systems in convex Lagrange problems having a nonzero discount rate," J. Econ. Theory 12 (1976), 71–113 (by R. T. Rockafellar).

62. "Stochastic convex programming: Kuhn-Tucker conditions," J. Math. Econ. 2 (1975), 349–370 (by R. T. Rockafellar and R. J-B Wets).

61. "On the equivalence of multistage recourse models in stochastic optimization," in *Control Theory, Numerical Methods and Computer Systems Modelling*, Lecture Notes in Econ. and Math. Systems No. 107, Springer-Verlag, 1974, 314–321 (by R. T. Rockafellar).

60. "Solving a nonlinear programming problem by way of a dual problem," Symposia Mathematica 19 (1976), 135–160 (by R. T. Rockafellar).

59. "Lagrange multipliers for an N-stage model in stochastic convex programming," in *Analyse Convexe et Ses Applications*, J.-P. Aubin (ed.), Springer-Verlag, 1974, 180–187 (by R. T. Rockafellar).

58. "Stochastic convex programming: singular multipliers and extended duality," Pacific J. Math. 62 (1976), 507–522 (by R. T. Rockafellar and R. J-B Wets).

57. "Existence theorems for general control problems of Bolza and Lagrange," Advances in Math. 15 (1975), 315–333 (by R. T. Rockafellar).

56. "Stochastic convex programming: basic duality," Pacific J. Math. 62 (1976), 173–195 (by R. T. Rockafellar and R. J-B Wets).

55. “Continuous versus measurable recourse in N-stage stochastic programming,” J. Math. Analysis Appl. 48 (1974), 836–859 (by R. T. Rockafellar).

54. **Conjugate Duality and Optimization**, No. 16 in Conference Board of Math. Sciences Series, SIAM Publications, 1974 (79 pages) (by R. T. Rockafellar).

53. “Penalty methods and augmented Lagrangians in nonlinear programming,” in *Fifth Conference on Optimization Techniques*, R. Conti and A. Ruberti (eds.), Springer-Verlag, 1973, 518–525 (by R. T. Rockafellar).

52. “Augmented Lagrange multiplier functions and duality in nonconvex programming,” SIAM J. Control 12 (1974), 268-285 (by R. T. Rockafellar).

51. “The multiplier method of Hestenes and Powell applied to convex programming,” J. Opt. Theory Appl. 12 (1973), 555-562 (by R. T. Rockafellar).

50. “A dual approach to solving nonlinear programming problems by unconstrained optimization,” Math. Programming 5 (1973), 354–373 (by R. T. Rockafellar).

49. “Convex algebra and duality in dynamic models of production,” in *Mathematical Models of Economics*, J. Łoś (ed.), North-Holland, 1973, 351–378 (by R. T. Rockafellar).

48. “Bibliographical supplement to convex analysis,” 193 additional items with comments (22 pages), updating the original bibliography of [25]; published in the Russian edition of the book; Mir, 1973 (by R. T. Rockafellar).

47. “Dual problems of optimal control,” in *Techniques of Optimization*, A. V. Balakrishnan (ed.), Academic Press, 1972, 423–431 (by R. T. Rockafellar).

46. “Saddle points of Hamiltonian systems in convex problems of Lagrange,” J. Opt. Theory Appl. 12 (1973), 367–390 (by R. T. Rockafellar).

45. “Optimal arcs and the minimum value function in problems of Lagrange,” Trans. Amer. Math. Soc. 180 (1973), 53–83 (by R. T. Rockafellar).

44. “State constraints in convex problems of Bolza,” SIAM J. Control 10 (1972), 691–715 (by R. T. Rockafellar).

43. “Convex integral functionals and duality,” in *Contributions to Nonlinear Functional Analysis*, E. Zaratonello (ed.), Academic Press, 1971, 215–236 (by R. T. Rockafellar).

42. “New applications of duality in nonlinear programming,” in *Proceedings of the Fourth Conference on Probability Theory* (Braşov, Romania, 1971), Editura Academmi R.S.R., 1973, 73–81 (by R. T. Rockafellar).

41. “Weak compactness of level sets of integral functionals,” Troisième Colloque d’Analyse Fonctionelle (CBRM, Liège, Belgium, 1970), H. G. Garnir (ed.), 1971, 85–98 (by R. T. Rockafellar).

40. “Saddle points and convex analysis,” in *Differential Games and Related Topics*, H.W. Kuhn and G.P. Szegö (eds.), North-Holland, 1971, 109–128 (by R. T. Rockafellar).

39. “Some convex programs whose duals are linearly constrained,” *Nonlinear Programming*, J. B. Rosen and O. L. Mangasarian (eds.), Academic Press, 1970, 293–322 (by R. T. Rockafellar).

38. “Existence and duality theorems for convex problems of Bolza,” Trans. Amer. Math. Soc. 159 (1971), 1–40 (by R. T. Rockafellar).

37. “Ordinary convex programs without a duality gap,” J. Opt. Theory Appl. 7 (1971), 143–148 (by R. T. Rockafellar).

36. “Integrals which are convex functional, II,” Pacific J. Math. 39 (1971), 439–469 (by R. T. Rockafellar).

35. “Generalized Hamiltonian equations for convex problems of Lagrange,” Pacific J. Math. 33 (1970), 411–427 (by R. T. Rockafellar).

34. “Conjugate convex functions in optimal control and the calculus of variations,” J. Math. Analysis Appl. 32 (1970), 174–222 (by R. T. Rockafellar).

33. “Measurable dependence of convex sets and functions on parameters,” J. Math. Analysis Appl. 28 (1969), 4–25 (by R. T. Rockafellar).

32. "Convex functions, monotone operators and variational inequalities," in *Theory and Applications of Monotone Operators*, A. Ghizzetti (ed.), Tipografia Oderisi Editrice, Gubbio, Italy, 1969, 34–65 (by R. T. Rockafellar).

31. "On the maximal monotonicity of subdifferential mappings," Pacific J. Math. 33 (1970), 209–216 (by R. T. Rockafellar).

30. "On the maximality of sums of nonlinear monotone operators," Trans. Amer. Math. Soc. 149 (1970), 75–88 (by R. T. Rockafellar).

29. "Local boundedness of nonlinear monotone operators," Michigan Math. J. 16 (1969), 397–407 (by R. T. Rockafellar).

28. "Monotone operators associated with saddle-functions and minimax problems," in *Nonlinear Functional Analysis, Part 1*, F. E. Browder (ed.), Proceedings of Symposia in Pure Math. 18, Amer. Math. Soc., 1970, 241–250 (by R. T. Rockafellar).

27. "On the virtual convexity of the domain and range of a nonlinear maximal monotone operator," Math. Annalen 185 (1970), 81–90 (by R. T. Rockafellar).

26. "Convexity properties of nonlinear maximal monotone operators," Bull. Amer. Math. Soc. 75 (1969), 74–77 (by R. T. Rockafellar).

25. **Convex Analysis**, Vol. 28 of Princeton Math. Series, Princeton Univ. Press, 1970 (470 pages) (by R. T. Rockafellar). Also available from 1997 in paperback from the same publisher, in the series: Princeton Landmarks in Mathematics and Physics.

24. "Convex functions and duality in optimization problems and dynamics," in *Mathematical Systems Theory and Economics I*, H. W. Kuhn and G. P. Szegö (eds.), Springer-Verlag, 1969, 117–141 (by R. T. Rockafellar).

23. "Conjugate convex functions in nonlinear programming," in *Proceedings of the Sixth International Symposium on Math. Programming*, H. W. Kuhn and A. W. Tucker (eds.), Dept. of Math., Princeton University, 1970, 418–485 (by R. T. Rockafellar).

22. "Duality in nonlinear programming," in *Mathematics of the Decision Sciences, Part 1*, G. B. Dantzig and A. F. Veinott (eds.), Lectures in Applied Math., Vol. II, Amer. Math. Soc., 1968, 401–422 (by R. T. Rockafellar).

21. "Gradients of convex functions," Transactions Amer. Math. Soc. 139 (1969), 443–467 (by E. Asplund and R. T. Rockafellar).

20. "The elementary vectors of a subspace of R^n," in *Combinatorial Mathematics and its Applications*, R. C. Bose and T. A. Dowling (eds.), Univ. of North Carolina Press, 1969, 104–127 (by R. T. Rockafellar).

19. "A model of cell cleavage, Biophysical J. 7 (1967), 659–673 (by J. Prothero and R. T. Rockafellar).

18. "Convex functions on convex polytopes," Proc. Amer. Math. Soc. 19 (1968), 867–873 (by D. Gale, V. L. Klee and R. T. Rockafellar).

17. "Integrals which are convex functionals," Pacific J. Math. 24 (1968), 525–539 (by R. T. Rockafellar).

16. "Convex programming and systems of elementary monotonic relations," J. Math. Analysis Appl. 19 (1967), 167–187 (by R. T. Rockafellar).

15. "A monotone convex analog of linear algebra," in *Proc. Colloquium on Convexity, Copenhagen, 1965*, W. Fenchel (ed.), Matematisk Institut, Copenhagen, 1967, 261–276 (by R. T. Rockafellar).

14. "Conjugates and Legendre transforms of convex functions," Canad. J. Math. 19 (1967), 200–205 (by R. T. Rockafellar).

13. "A general correspondence between dual minimax problems and convex programs," Pacific J. Math. 25 (1968), 597–611 (by R. T. Rockafellar).

12. "Duality and stability in extremum problems involving convex functions," Pacific J. Math. 21 (1967), 167–187 (by R. T. Rockafellar).

11. **Monotone Processes of Convex and Concave Type**, Memoir 77, Amer. Math. Soc., 1967 (70 pages) (by R. T. Rockafellar).

10. "Characterization of the subdifferentials of convex functions," Pacific J. Math. 17 (1966), 497–510 (by R. T Rockafellar).
9. "Minimax theorems and conjugate saddle-functions," Math. Scandinavica 14 (1964), 151–173 (by R. T Rockafellar).
8. "Extension of Fenchel's duality theorem for convex functions," Duke Math. J. 33 (1966), 81–89 (by R. T Rockafellar).
7. "On the subdifferentiability of convex functions," Proc. Amer. Math. Soc. 16 (1965), 605–611 (by A. Brøndsted and R. T. Rockafellar).
6. "Level sets and continuity of conjugate convex functions," Trans. Amer. Math. Soc. 123 (1966), 46–63 (by R. T Rockafellar).
5. "Helly's theorem and minima of convex functions," Duke Math. J. 32 (1965), 381–398 (by R. T Rockafellar).
4. "A necessary condition for the existence of best approximations," J. Math. Mech. 13 (1964), 1037–1038 (by B. Kripke and R. T. Rockafellar).
3. "A combinatorial algorithm for linear programs in the general mixed form," SIAM J. 12 (1964), 215–225 (by R. T Rockafellar).
2. "Duality theorems for convex functions," Bull. Amer. Math. Soc. 70 (1964), 189–192 (by R. T Rockafellar).
1. **Convex Functions and Dual Extremum Problems**, doctoral dissertation, Dept. of Math., Harvard University, 1963 (175 pages) (by R. T Rockafellar).