MATCH
Communications in Mathematical and in Computer Chemistry

MATCH Commun. Math. Comput. Chem. **75** (2016) 247-248

ISSN 0340 - 6253

BOOK REVIEW

Advances in Mathematical Chemistry and Applications (Volume 2)

edited by

Subhash C. Basak, Guillermo Restrepo & José L. Villavaces

Bentham Science Publishers, Sharjah, U. A. E., 2015, XI+334 pp.
eISBN 978-1-68108-052-9, ISBN 978-1-68108-053-6, 89US$ (person), 356 US$ (library)

This is the second volume of the e-book *Advances in Mathematical Chemistry and Applications*; for details on the first volume see *MATCH Commun. Math. Comput. Chem.* **73** (2015) 271–272.

The *Foreword* for this e-book is written by L. B. Kier, in which he congratulates to the editors for the job well done. We congratulate them too. This e-book provides to the reader a wide spectrum of topics in the area of mathematical chemistry and beyond. Namely, a few chapters of this book cover topics that belonging to the area of computer biology and bioinformatics.

This volume, as it was announced in the preface of the first volume, consists of 13 chapters. These chapters have been written in total by 38 authors. The technical preparation of this volume is practically the same as of the previous one. The *Preface*, written by the editors, comes after Kier's foreword. Short and informative summaries of all 13 chapters are given in it. The following chapters are included in the e-book:

1. A. Graovac, A. R. Ashrafi, *Topological efficiency approach to fullerene stability – case study with* C_{50} (pp. 3–23)
2. A. Bernal, E. Llanos, W. Leal, G. Restrepo, *Similarity in chemical reaction networks: Categories, concepts and closures* (pp. 24–54)

3. C. Raychaudhury, D. Pal, *Discrimination of small molecules using topological molecular descriptors* (pp. 55–73)
4. F. Kong, W. Wu, N. Ji, C. L. Calson, *The periodicity of molecules* (pp. 74–95)
5. A. Nandy, *The GRANCH techniques for analysis of DNA, RNA and protein sequences* (pp. 96–124)
6. J. B. Niemi, G. J. Niemi, *Linear regression, model averaging, and Bayesian techniques for predicting chemical activities from structure* (pp. 125–147)
7. M. T. Saçan, M. Novič, M. D. Ertürk, N. Minovski, *Marine algal toxicity models with Dunaliella tertiolecta: In vivo and in silico* (pp. 148–178)
8. M. C. Bagchi, P. Ghosh, *Anti–tubercular drug designing using structural descriptors* (pp. 179–190)
9. S. Shinde, V. Mandlik, S. Singh, *Integrating bioinformatics and systems biology for exploring novel lipid pathways in infectious diseases* (pp. 191–220)
10. S. Medina, S. Casas, M. Restrepo, A. Alvarez, A. J. Bernal, A. Fernando González Barrios, *Applications of molecular docking and molecular dynamics on the inhibition of quorum sensing systems* (pp. 221–242)
11. J. F. Weston, *Designing models for metalloenzymes* (pp. 243–264).
12. X. Wu, G. Yang, L. Zhou, *The multi–factor coupled protein folding: Insights from molecular dynamics simulations* (pp. 265–299)
13. C. Flamm, B. M. R. Stadler, P. F. Stadler, *Generalized topologies: Hypergraphs, chemical reactions, and biological evolution* (pp. 300–328).

The first six chapters and the last one overview new theories and tools, whilst the others are devoted to applications of mathematical chemistry to real–world problems, including those in which mathematical chemistry is interlaced with systems biology and bioinformatics.

The e-book ends with a *Subject Index* (pp. 329–334).

The first volume of *Advances in Mathematical Chemistry and Applications* set high standards that were difficult to reach. Yet, the second volume surpasses all expectations and meets the quality of the first volume. We conclude this book review with the same words as in our review of volume 1:

Advances in Mathematical Chemistry and Applications is a valuable, state-of-the-art, treatise, outlining the contemporary activities in this field of science. It will be useful for both experts and beginners. It should be a must for any decent science library.

Boris Furtula, Ivan Gutman