



Preface

Quantum Dynamics and Femtosecond Spectroscopy (in honor of Professor Vladimir Y. Chernyak on the occasion of his 60th birthday)



It is a great honor and privilege for us to serve as guest editors for this special issue of *Chemical Physics* dedicated to our personal friend and great scientist Professor Vladimir Yan Chernyak. Vladimir has made seminal contributions to non-equilibrium statistical mechanics, the theory of femtosecond nonlinear spectroscopy, the theories of open quantum systems and stochastic systems, theoretical chemistry and mathematical physics. He authored over 200 peer reviewed publications. The material systems Vladimir studied include small and polyatomic molecules, molecular aggregates, dendrimers, biological photosynthetic complexes, and organic semiconductors. His research extended well beyond chemical physics. Vladimir developed graphical model approaches relevant to statistical physics of applied probability. His topology studies delve into the world of “immaterial” objects. Frequently, such mathematical abstractions allowed Vladimir to find highly nontrivial interconnections and shortcuts across fields, thus uncovering unusual properties of usual systems.

Vladimir has a special place in the academic community. In the time of increasing specialization and narrowing research interests, the work of Vladimir builds bridges among scientists focusing on different areas of chemical physics and theoretical chemistry. Vladimir has a unique, innate ability to look at the gist of the problem from different perspectives and to get unexpected insights. His friends are aware of his narrative way of doing science, when he generates new and highly nontrivial ideas “on the fly”. Conversations and discussions with him are not always easy, due to the challenge to catch up with his flight of thought. Yet, they have been always useful, instructive and inspirational. Vladimir’s prompt and inquisitive way of thinking is remarkable and makes him a prominent figure at conferences and seminars.

The Special Issue is opened by personal reminiscences of Professor Shaul Mukamel, who has been a collaborator of Vladimir for more than twenty years. It is followed by thirty two research

papers. The diversity of scientific interests of Vladimir shapes the scope of the Special Issue, which covers a broad spectrum of research in femtosecond nonlinear molecular spectroscopy, quantum dynamics, and stochastic dynamics. Many contributions to this special issue are inspired and/or influenced by Vladimir's ideas and bear a touch of his personality. We are sure that we express the opinion of all the contributors by wishing Vladimir many more fruitful years of the unique "Chernyak science". We look towards new exciting projects and collaborations with you!

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