



Tribute to George C. Schatz

It is a delight to write a note celebrating the 60th birthday of George Schatz, and it is an even greater delight that this note appears in the journal that George has so wonderfully and creatively edited for half of a decade. As colleagues, we appreciate George's mastery of his field, his open mind, his extraordinary hard work, his unbelievable grasp of physical chemistry (indeed of all chemistry), his collaboration, his leadership, his teaching, his warmth, and his friendship. As chemists, we marvel at George's astonishing ability to understand experiment, to match the right theoretical tool to the right experimental problem, and to overcome nearly any difficulty on his way to a creative solution to an important chemical puzzle. His accomplishments, his citizenship in the community, his friendship and mentoring of so many young scientists, and his absolute devotion to his field, to his family, and to his friends demark George as one of the outstanding theoretical/computational chemists in the world today.

George comes from Sacket's Harbor, New York, where he was an accomplished high school athlete. He brings many

wonderful things from Sacket's Harbor, most importantly Margaret Schatz. She is a remarkable scholar, personality, and presence, someone who makes any group a warmer, happier, more successful, and more interesting one.

George's chemical imagination, and his chemical interests, are essentially unbounded. Within the last two years, he has worked on topics including nanoparticle optical properties, inhomogeneous diffusion in nanostructures, melting DNA hybrids, bimolecular reactions, near field spectroscopy, electrokinetics theory, ion channels, optical activity, adhesion forces, nanoscale fracture mechanics, angular distributions in photoelectron emission, hyperthermal reactions, synthesis/properties of DNA dumbbells, surface-enhanced spectroscopies, pull-off forces in atomic force microscopy, negative index materials, defective carbon nanotubes, plasmonic properties of copper, effective medium molecular dynamics, ultranano crystalline diamond, reactive scattering, DNA triplex stability, nanografting, array waveguides, Raman imaging, nonadiabatic semiclassical dynamics, electrostatic aggregation, quantum trajectory dynam-

ics, plasmon resonance theory, resonance Raman calculations, nanosphere lithography, pyridine/gold clusters, and atomic scale roughness. George has published seventy papers in the last 24 months, both in this journal and in a number of others across physics, chemistry, and nanoscience. This astonishing productivity clearly indicates George's ability to choose the right theoretical tool for the right experimental problem, to develop new formalisms, and to utilize existing formalisms in a remarkably effective way.

Ordinarily, theoretical chemistry separates into dynamics, structure, and quantum chemistry. As is clear from the list above, George is a master in all these regimes. He also does wonderful work in materials chemistry and in biological chemistry.

As theoretical chemistry has grown, more theoretical chemists become fully engaged in purely theoretical issues, without venturing into the understanding of experiment, the deduction of mechanism, or the solving of integrated problems involving different experiments. George is not this sort of scientist: he is a holistic thinker, one whose understandings are sufficiently deep and sure that he can interpret experiment, develop mechanistic theory, and perform state of the art calculations, all to obtain answers that not only illuminate the problem under study but also provide new understandings to the entire field of chemistry.

George is not perfect—he occasionally splashes when paddling a canoe—and despite his presence, the book that one of us and George wrote together still contained a few errors.

For many years, M.A.R. sat in the best place in the world for a theoretical chemist, with John Pople on one side of his office and George Schatz on the other. That environment was both heady and intimidating, but certainly the great intellectual joy of M.A.R.'s own career.

R.P.V.D. and George have worked together on the intricacies of surface enhanced Raman spectroscopy for more than 30 years, and in so doing R.P.V.D. has been collaborator, student, teacher, colleague, and disciple of George's. This is a seriously complicated scientific problem, and George's willingness to probe into the details of the experiment has led to deeper understandings and surer predictions than a disinterested theorist would ever have produced. Without a doubt, George has contributed more to the theory of surface enhanced spectroscopy and related processes than any other person.

The scientific environment that George has created around him makes it a perfect place for a young scientist to come and work on some of the most interesting and challenging problems in theoretical chemistry. Working with George has been truly inspiring due to his enthusiasm, support, and vast knowledge of chemistry. L.J. and D.T. are forever grateful for this opportunity, which serves as a continuing inspiration for how science should be done.

At age 60, George still does things like voluntary overloads in freshman chemistry, and service on nearly any committee or editorial board that he feels is useful. As an outstanding citizen of the chemical community, George Schatz has made chemistry better for all of us. It is a delight to celebrate his 60th birthday.

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