

## PREFACE

This volume contains the texts of most of the plenary lectures presented at the Twenty-First International Conference on Solution Chemistry. The conference was held in Ottawa, Canada, from August 5 to August 10, 1990, and was under the auspices of the International Union of Pure and Applied Chemistry, the Natural Sciences and Engineering Research Council of Canada, and the University of Ottawa. The meeting was also supported by the Canadian IUPAC Company Associates (Merck Frosst Center for Therapeutic Research, Pulp and Paper Research Institute of Canada, Dow Chemical Canada, Nova Corporation of Alberta, Sherritt Gordon Research Center, Xerox Research Center, C.I.L. Inc., Esso Petroleum Canada, Ortech International, Shell Canada Ltd.), and of Varian Canada.

The Organizing Committee invited Professor Keith J. Laidler to give a special Introductory Lecture on the field of solution chemistry, from an historical perspective. The text of this special invited lecture is also published in this issue.

One hundred and forty scientists, from thirty-one countries representing the five continents, participated in the Conference. The scientific program consisted of nine plenary lectures, fifty-seven oral presentations and forty poster presentations. Since solution chemistry encompasses a broad range of fields and of subjects, the choice of the topics of the plenary lecturers reflected that diversity.

Traditionally, one of the major objectives of chemistry has been to rationalize atomic organization within molecules. During more recent years there has been a blooming of interest in rationalizing supramolecular organization, involving an expansion from the intramolecular level of covalent bond organization to the intermolecular level of non-covalent bond organization. For many years the solution chemist has been concerned with supramolecular organizational problems - for example by studying the molecular structure of solvents and the solvent's microstructure round a solute. Two of the papers at the conference were concerned with supercritical fluids and the analytical chemistry of natural waters. Many of the lectures were concerned with the molecular organization of solutions, borrowing their subject-material from the traditional fields of organic, inorganic and physical chemistry. Topics covered are thermodynamics and Monte Carlo simulations of the role of the solvent in host-guest recognition processes; the kinetics and mechanisms of cationic complexation by multidentate and macrocyclic complexes; fast reaction dynamics and solvent motions in electron-transfer processes; dielectric relaxation and X-ray observation; and studies of electrolyte solutions. Also included were fascinating problems raised by organic and biological chemists who take advantage of unusual synthetic properties of enzymes in non-aqueous solvents.

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