

Editorial

Some time ago, at an international conference on coordination chemistry, I was invited to select a winning poster in the field of solution chemistry. More than 200 posters were presented in the section “Solution Chemistry”, but remarkably few were concerned with what is generally understood by this term. Yes, many workers described chemistry involving solutions in that they studied reactions or preparations carried out in liquid media, but we could hardly automatically describe work carried out in glass vessels as “Silica chemistry”!

Did this paucity of papers imply that interest in solution chemistry has abated? By no means! It reflects, rather, that the interest in solute-solvent interactions is no longer the province of chemistry alone. In biology, for instance, the role of the solvent, *i.e.* water, is of enormous importance, particularly with respect to the interplay between hydrophobic and hydrophilic phenomena. This has led to renewed interest in the structure of water itself and therefore provoked many theory-based studies, both thermodynamical and quantum mechanical. This aspect is clearly reflected in some of the work presented here. Furthermore, it means that much of the work in this field presently being carried out by chemists is now increasingly presented in journals and at conferences devoted to biology, physics, and medicine. Finally it has to be noted, with a little sadness, that solution chemistry research is increasingly being taken over by those working in the field of theoretical physics.

Modern technology often requires reactions to be carried out in mixed solvents, and so considerable interest has arisen in the way in which these interact with solutes. Thus, papers are included in this issue that deal with preferential solution in solvent mixtures and with thermodynamic aspects of such solvation phenomena.

Recent investigations of thermochromism and solvatochromism in solution have also been considered – a rapidly expanding field of study, both of intrinsic interest and suited for practical applications, *e.g.* for heat sensitive coatings. Furthermore, coming to the boundaries of solution chemistry, a paper in which even insoluble material such as powdered silica can exhibit solvent-like properties when suspended in organic solvents has been included.

Of course, this special issue covers but a small range of the vast variety of work in progress on the structure of liquids and their behaviour towards solutes. Nevertheless it is hoped that it will wet the appetite of the readers and encourage them to take interest in this fundamental aspect of modern physics and physical chemistry.

Wolfgang Linert
Issue Editor