

Preface

The following 10 papers are selections from the 4th International Symposium on Chemistry and Biological Chemistry of Vanadium held 3–5 September 2004 in Szeged, Hungary. This conference attracted over 110 participants from 25 countries and 4 continents. Plenary and invited lectures as well as posters discussed the inorganic chemistry of vanadium, vanadium chemistry in catalysis and organic synthesis, and biological aspects of vanadium chemistry. A new feature was introduced: the presentation of the Vanadis Award.

The purpose of the Vanadis Award is to recognize an outstanding contributor to the advancement of vanadium science. The award will be presented at each International Vanadium Symposium prior to a lecture to be given by the recipient. It is awarded on the basis of contributions to a discipline or combination of disciplines of vanadium science, and is presented to an investigator who has produced innovative research with impact on the direction of the field. The nominee is selected on the basis of the following criteria: (1) Innovative research: A history of development or expansion of techniques and procedures and discovery of new chemical, biochemical, biological, technological, or pharmaceutical systems; (2) Development of new applications in one or more of the following areas: chemistry, biochemistry, biology, pharmaceutical science, materials science, and nanotechnology; (3) Wide-ranging influence of the nominee's work on the research of others in one or more disciplines; (4) History of high-quality and -impact publications; and (5) Service of the nominee to progress, application, and exploration of vanadium in science. The recipient of the first Vanadis Award is Prof. Debbie C. Crans of Colorado State University, whose award address is the first contribution to be presented herein.

The additional contributions begin with papers covering various aspects of the inorganic chemistry of vanadium. These papers are followed by descriptions of recent results in the use of vanadium compounds to further organic synthesis, and on the catalytic behavior of interesting vanadium complexes. The final selection includes papers dealing with the role of vanadium in haloperoxidases, or as insulin-mimetic compounds, which may be orally administered replacements of insulin injections.

A tremendous increase in studies of aqueous vanadium chemistry over the past decade has been driven by the need to comprehend the diverse biological effects of vanadium. Examples of the rich array of data and concepts needed to explain the biological role of vanadium are given by models of the vanadium-containing haloperoxidase enzyme activity. However, this selection of papers from the 4th International Vanadium Symposium indicates that basic inorganic studies and a wide range of applications of vanadium chemistry to fundamental chemical problems of synthesis, reactivity, and catalysis are not lacking. Indeed, we look forward to the 5th International Vanadium Symposium to be held in San Francisco, CA USA in the fall of 2006, where additional fundamental studies linked to the need to better understand vanadium nutritional essentiality, vanadium toxicity, vanadium therapy, and vanadium catalysis, including "green chemical" industrial applications will be presented.

Kenneth Kustin and Tamás Kiss
Conference Editors