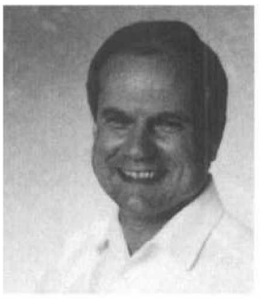
CHIMIA 2001, 55, No. 6

EDITORIAL

What is Crystallography?

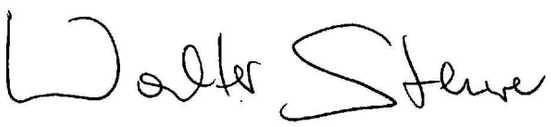


I am often asked by laymen 'What is crystallography?' Asking in reply what they think it is they usually guess 'something with crystals, maybe precious stones' or even 'something to do with the magic healing power of crystals'. Well, that is not very surprising. In school everybody gets an impression of what physics and chemistry are. But crystallography? Never heard of it. Of course, that is different with scientists. Almost every chemist knows 'the crystallographer, the guy back there doing the crystal structures'. For most chemists and physicists, crystallography is just a synonym for routine X-ray structure analysis.

It is more or less general knowledge nowadays that matter is built of atoms, that single crystals of silicon are the basic components of computers or that one tries to understand and modify life on a molecular level. But would you associate crystallography with these things? I think that not only laymen are uncertain as to what modern crystallography entails. I am quite sure that many scientists studying the relationships between the crystal structures and physical properties of materials are not aware that they are dealing with fundamental crystallographic questions. Most of the structural work on quasicrystals, for instance, is done by physicists who would never say that they do crystallography.

Crystallography has changed from a purely descriptive science dealing with the morphology and symmetry of mineral crystals to an inter- and transdisciplinary science dealing with all questions related to crystal structures, whether they arise in materials science, chemistry, physics or life science. A quick glance at the topics of the most recent of the triennial meetings of the International Union of Crystallography *(http://www.iucr.org/)*, Glasgow 1999, gives an impression of what modern crystallography involves: experimental and theoretical structural studies on all types of materials, from amorphous to crystalline, from quasicrystals to nucleosomes, on a pico-second timescale, in excited states, at the pressures and temperatures of the Earth's core or close to zero K, on bulk materials, fibers, micro crystals or surfaces and interfaces; it also includes the study of the self-assembly of matter, of crystal growth at ambient conditions, under high pressure or micro gravity, and the investigation of the relationship between the crystal structure of a material and its physical properties. Four of the thirty-two keynote speakers at that IUCr conference in Glasgow were members of the small Swiss crystallographic community. Crystallography in Switzerland has a long tradition and enjoys international recognition. One of the contributions to this special issue of CHIMIA outlines the historical development that has led to this reputation (see also *http://www.sgk-sscr.ch/*).

Crystallography is a dynamic and innovative interdisciplinary science, both worldwide and in Switzerland. With the construction of an internationally competitive neutron spallation source and a synchrotron light source at the Paul-Scherrer Institute at Würenlingen AG, the Swiss crystallographic community has acquired powerful tools for exciting research with high impact. This special issue of CHIMIA gives a snapshot, neither complete nor representative, of what is going on in this lively structural science in Switzerland.



Prof. Dr. Walter Steurer
Laboratory for Crystallography
ETH Zurich and University of Zurich

It is with great appreciation that the Editorial Board of CHIMIA warmly thanks the coordinating guest editor Prof. Walter Steurer for his enormous efforts in planning and efficient collation of the present attractive variety of contributions on 'Crystallography in Switzerland'.