

## Editorial

Zeitschrift für Kristallographie – Crystalline Materials

We start the year 2010 with new editors and an extended scope. The first crystallographic journal of the world has a long history. In 1877, Paul von Groth, then teaching in Straßburg, saw the necessity to found a journal dedicated to crystallography. He feared that a recent change in the editorial board of the journal “Annalen der Physik” had deprived the community involved in descriptive studies of crystals of its main organ of publication. In this first, pre-diffraction, era of the journal, the understanding of symmetry, morphology and anisotropy of physical properties were the main issues, along with suggestions for the atomistic structure behind the macroscopic scenery. With our new team of editors, a restriction in the topics served by the journal is not on the agenda. On the contrary.

In the 2002 issue of *Zeitschrift für Kristallographie*, Editor-in-chief Walter Steurer, who is now retiring from co-steering and steering the journal after eight years, attempted to arrive at a bottom-up definition of the art and science of crystallography by conducting and publishing a survey among the authors and readers of the journal. Walter Steurer obtained an invaluable documentation of views on crystallography at the turn of the century which he published in the issue 7–8 of *Z. Kristallogr.* **2002**, 217.

The chief editor summarized

*Crystallography deals with the structure of condensed matter on atomic scale, in its stable as well as in its metastable states. It studies structural ordering as a function of chemical composition, temperature, pressure, electric or magnetic fields, time ... It relates physical, chemical or biological properties to structural order. Crystallography is based on the fundamental sciences Physics, Chemistry and Biology, however, its respective fields are also part of them. Crystallography is also basis and fundamental part of Materials Science.*

Some of these views presented in 2002 had a wide aperture, some were narrowed down to one point. Some essential physics tells us that high point resolution is impossible without a wide aperture. A point of view is a horizon with a radius of zero (Haussühl). The views also oscillated between aspects of “description” and “prediction”. The structure – on any length- and time-scale – is one of the most fundamental properties of any system. The structure is the essential fundament for the prediction or understanding of any physical or chemical property, even the most simple ones like density. Yet we predict that crystallography will remain descriptive as long as there is no reason to believe in a limit of complexity. For any system with a temperature different from 0 K or a composition leading to more than one phase, prediction of crystal structure *ab initio* is still only on the horizon. Another important step to take now is to see crystals as parts of a system, interfaced with the other parts, and subjected to thermodynamic or biologic control.

The new Editorial Board takes this challenge of opening up the traditional wide aperture of vision of the journal to include all kinds of research topics where structural properties play a significant role.

We sincerely thank Walter Steurer for his service and continuing support for the *Zeitschrift of Kristallographie* and his many achievements during the time of his Chief Editorship.

In seeking a definition of crystallography in 2002, Walter Steurer also concluded:  
Well, there is no science without scientists standing up for it.

Wish us Good Luck!

Munich, January 2010

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