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### Crystallography across the sciences 2

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## Crystallography Across the Sciences 2

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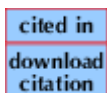
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This year the crystallographic community celebrates several important jubilees. In the summer, it will be 60 years since the International Union of Crystallography held its first Congress and General Assembly in Cambridge, USA, and elected its first Executive Committee. During the year, it will also be 60 years since the first volume of *Acta Crystallographica* was published by the IUCr, and 40 years since the launch of *Journal of Applied Crystallography*. The present 20th Executive Committee of the IUCr decided that these jubilees should be celebrated. One of the birthday actions is this Special Issue of *Acta Crystallographica*.

*Crystallography Across the Sciences 2* has been planned with a broad readership in mind. We asked the authors to write feature articles about their favourite subjects in a way that would be accessible to the whole crystallographic community. Articles describe state-of-the-art research in which crystallography has played a major role; they are intended to be attractive for a broad scientific readership including graduate and undergraduate science students.

A few articles have also been included that describe the work of the IUCr or look back to important issues of more general interest. For example, the issue includes an article on IUCr Journals by Peter Strickland and Brian McMahon, which describes the developments of the journals in a world changing from paper to electronic, and an article by Lachlan Cranswick on the history of crystallographic computing.

The history of the IUCr was described by Durward Cruickshank in *Crystallography across the Sciences* (1998); this article is available from the history section of the IUCr website (<http://www.iucr.org/>). An article by Harmke Kamminga about the early history of the Union is present in the same section. Cruickshank describes the birth of the Union and *Acta* in the years 1946 to 1948, in which process Paul Peter Ewald played a prominent role. Ewald was not only an eminent scientist but also a great community builder. In the early years of the IUCr, he was the Chair of the the Journal Subcommittee and of the Union's interim Executive Committee; he was also the first Editor of *Acta*.

I think it is appropriate to cite P. P. Ewald from the first two pages of the first issue of *Acta Crystallographica* [*Acta Cryst.* (1948), **1**, 1-2], as his Editorial is still timely and worth reading:

... This journal is therefore starting at a time of great promise for interesting new developments in crystallography. Wide fields of future research are opening up. Much is yet to be learned about the

*general mechanism of crystallization, including the reasons for the transitions of a substance from one crystalline form to another; about the mechanical, electrical, optical and plastic properties of crystals in relation to atomic forces and structure; about the internal perfection and imperfection of crystals and the consequences thereof; about chemical bonds, surface forces, diffusion and chemical reactions within the solid; about the diffraction of atoms, electrons, neutrons and, possibly, of other particles by crystals. Many problems arise from the study of substances which show a periodicity less perfect than the three-dimensional one of true crystals. Fibres, high polymers, and high molecular substances in general require the study of the weak intermolecular forces which are determined by the surface of the molecule rather than directly by its internal constitution, and the same is true for the mesomorphic states of matter.*

*Acta is intended to offer a central place for publication and discussion of all research in this vast and ever-expanding field. It borders, naturally, on pure physics, chemistry, biology, mineralogy, technology and also on mathematics, but is distinguished by being concerned with the methods and results of investigating the arrangement of atoms in matter, particularly when that arrangement has regular features. ...*

*Acta does not aim at diverting fundamental physical and chemical papers from the journals established for these sciences. It is, however, felt that a considerable body of investigations on crystalline and kindred substances would find a more appropriate place in a journal devoted to the detailed study of individual substances by the various methods, and to the further development of these methods. It is hoped that Acta will fulfil this useful function. ...*

*Acta, in trying to reassemble the crystallographic work now scattered through a great variety of journals and to give it full expression, should fulfil an important function in the general mechanism of scientific publication. It is frankly intended to be the main journal for experts in crystallography the world over. It is hoped that all important new lines of research will be represented in it, and that Acta will focus international discussion of problems of crystallography.*

*As regards organization, Acta Crystallographica is breaking new ground by belonging to the crystallographers themselves, being the property of an International Scientific Union.'*

So wrote P. P. Ewald in his Editorial Preface in 1948. It is great that the IUCr has grown since then into the strong organization of today and that *Acta Crystallographica* has developed into a group of eight journals, each with its own personality. The international crystallographic community, with all its volunteers, and the staff in Chester may be proud of these achievements and be encouraged to work enthusiastically towards a bright future for the journals and the IUCr itself.

I would like to explain briefly the procedure used to edit this issue. I started by e-mailing the Co-editors of IUCr journals, individual members of IUCr Commissions and other crystallographers to ask them to propose topics and authors. This led to an initial list with almost 200 potential authors and about 100 different topics. As a special issue with about 25 authors was aimed at, with topics across the full range of crystallography, reflecting also the international character of our community and its vitality, a rather complicated selection process took place in which I was assisted by two senior Editors of the IUCr, Gernot Kostorz and Dieter Schwarzenbach. As in 1998, when the same procedure was followed, it would have been easy to make more collections rather than the one you have in hand, all similarly interesting and representative of crystallography in the first decade of the 21st century. Many invitees accepted the challenge and most of them finished their manuscripts in time. Although all the articles in this issue were invited, they have been subject to normal refereeing procedures to ensure the scientific quality and attractiveness of the papers.

As the Guest Editor of this volume, I want to thank all contributors and advisers for their enthusiastic cooperation. A few of them I want to thank in person: Sue Barnes, who is responsible for the technical editing, for the very pleasant cooperation; Peter Strickland, with his immediate help when necessary; Gernot Kostorz and Dieter Schwarzenbach, for their very useful discussions and advice; and Mike

Dacombe and Andrea Sharpe for their help.

For our community it is great to have a Union and to own so many scientific journals. I wish *Acta Crystallographica* and all its associated journals a long and vital life, and also a long and vital life for the International Union of Crystallography.

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