The ability of the pair distribution function analysis of total scattering from a powder to determine the local ordering in helical proteins. PLoS Biol. 2004; 2(9):e325.

1. Metasynthesis studies of crystal nucleation

2. Neutron and synchrotron science and technology

3. Metastable crystal structures from non-oriented single-axis sparse X-ray data

4. High-resolution neutron scattering

5. Full elastic strain and stress tensor measurements from individual dislocation cell microscopy

6. Sub-atomic resolution X-ray crystallography and neutron crystallography: promise, challenges and potential

7. Advanced GI techniques for modern soft-matter materials analysis

8. Advanced ensemble modelling of flexible macromolecules using X-ray solution scattering

9. Single-molecule imaging with longer X-ray laser pulses

10. Towards phasing using high X-ray intensity

11. X-ray imaging detectors for synchrotron and XFEL sources

12. Characterizing transverse coherence of an ultra-intense focused X-ray free-electron laser by an extended Young’s experiment
Crystallization in the 21st century

S. Owen

The field of crystallization, which has had a major impact on the sciences in the last 100 years, is continuing to expand and has undergone significant changes. New strategies and conditions are emerging. Structure-function-dynamics will become an integrated theme for many studies as well as obtaining structures of the "determined" treasuries of crystals.

Crystallography at IUCr: a new era

T. Schröder, M. Kalbitzer and R. Henderson

In this overview, the authors briefly outline recent advances in electron cryo-microscopy (EC-EM) and explain why the Journal of Structural Biology is the home for publications covering many present and future developments in the field crystallography.

Chemical and engineering strategies for the control of hydrate formation

A. J. Lawless et al.

Hydration exerts a significant effect on the functional properties of biomaterials. The wetting of porous biomaterials is an important factor in the bone ingrowth and stability of dental implants. This article describes wetting behaviors and presents possible strategies for the control of hydrate formation.

A rapid method for the preparation of Fe3O4 nanoparticles

I. E. A. Mohy El-Din et al.

Fe3O4 nanoparticles are widely used as magnetic labels in various biological applications. This article describes a rapid and easy method for the preparation of Fe3O4 nanoparticles using a simple chemical reaction.

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Materials and computation

Advanced electron crystallization through model-based imaging


The computer simulation methods presented in this paper may be applied to analyze electron microscopy images in a quantitative manner.

Demonstration of thin film pair distribution function analysis (TPDF) for the following non-crystalline amorphous and crystalline thin films


It is shown how non-crystalline x-ray scattering can be used to obtain high quality pair distribution function analyses using x-ray thin film material substrates, allowing for a range of studies for the local structure in film materials.

Real-time direct and diffraction X-ray imaging of iridescent silicon

A. Rack, M. Schell and A. Diederich

A direct, real-time, x-ray image of iridescent silicon is shown in this study. By combining diffraction and transmission x-ray imaging, the performance of the x-ray image frame rates required to follow the crystal dynamics in real time.

Biotechnology and medicine

Biological and functional interaction between platelet-derived growth factor and beta-3 integrin

M. S. Yang et al.

Platelet-derived growth factor (PDGF) and beta-3 integrin are two molecules that exhibit strong interaction with each other. This article describes the biological and functional interaction between these two molecules.

In vivo and in vitro analysis of the impact of beta-3 integrin on platelet aggregation

M. S. Yang et al.

Beta-3 integrin plays a crucial role in platelet aggregation. This article describes the in vivo and in vitro analysis of the impact of beta-3 integrin on platelet aggregation.

Investigation of the effect of beta-3 integrin on platelet aggregation

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Beta-3 integrin is a critical molecule in platelet aggregation. This article describes the investigation of the effect of beta-3 integrin on platelet aggregation.

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