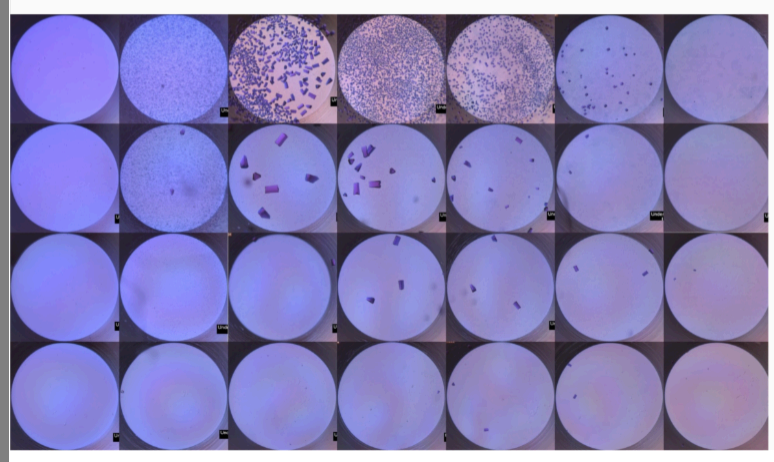
Douglas Instruments
Success in protein crystallization



EMBRACING STRUCTURAL SCIENCE
IUCr 2026
CALGARY, CANADA
AUGUST 11-18

Dear Crystallographer

If you are attending the **IUCr meeting** next month, please visit Douglas Instruments at **Booth 44**.

The **programme** also includes a talk, workshop, and poster sessions featuring recent work from Douglas Instruments and our collaborators. These sessions will cover recent developments, methods, and applications using Oryx, including phase diagram optimization, microseeding, microbatch-under-oil and small molecule crystallization.

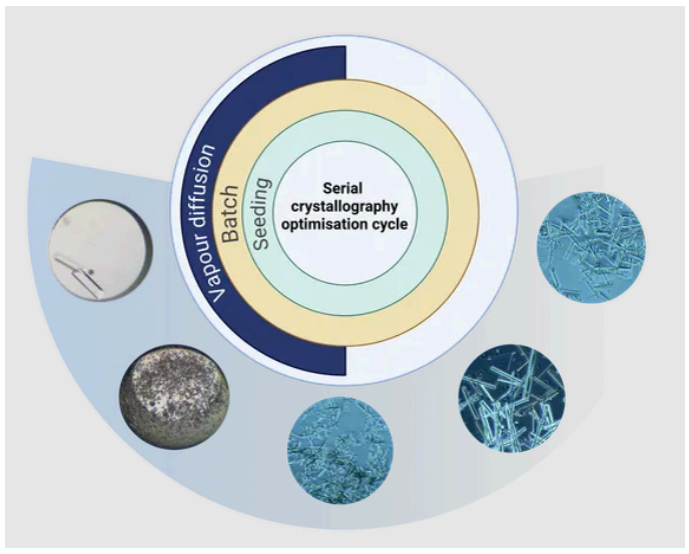
Please see details and links to the abstracts below:

Oral Presentation

Lowering the barriers to serial crystallography: a rational framework for microcrystal sample optimization

Jack Stubbs, Max IV Laboratory, Lund University
Part of session MS-119
Monday August 17th 3:50 PM - 4:10 PM MDT

Douglas Instruments collaborated with Jack during his PhD to develop an automated microbatch-under-oil method for efficiently mapping protein crystallization phase boundaries using very small sample volumes. The approach enables rational optimization and reliable scale-up of microcrystal suspensions for serial crystallography, XFEL, synchrotron, and MicroED experiments, reducing reliance on resource-intensive trial-and-error screening.
(Abstract)

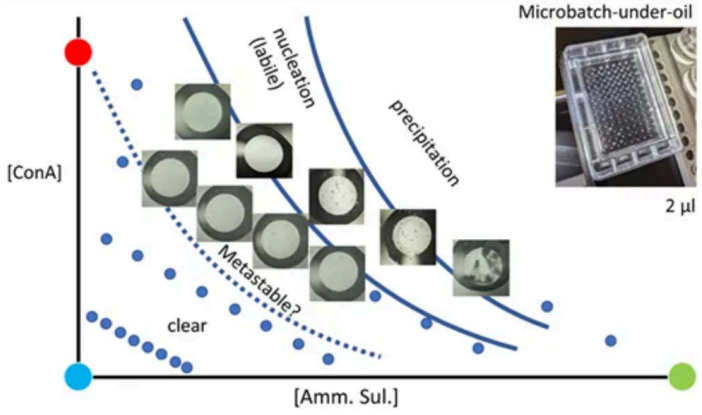


Poster

Using phase diagrams with microseeding to prepare crystal samples for routine and advanced data collection techniques

Patrick Shaw Stewart, Douglas Instruments
Part of poster session 5B
Sunday August 16th 5:00 PM - 6:00 PM MDT

A phase diagram-guided approach combining microseeding with batch crystallization to identify the metastable zone and improve control over crystal nucleation, size, and quality. The method provides a practical framework for preparing samples for both routine crystallography and more demanding techniques, including serial crystallography, MicroED, and neutron diffraction.
(Abstract)

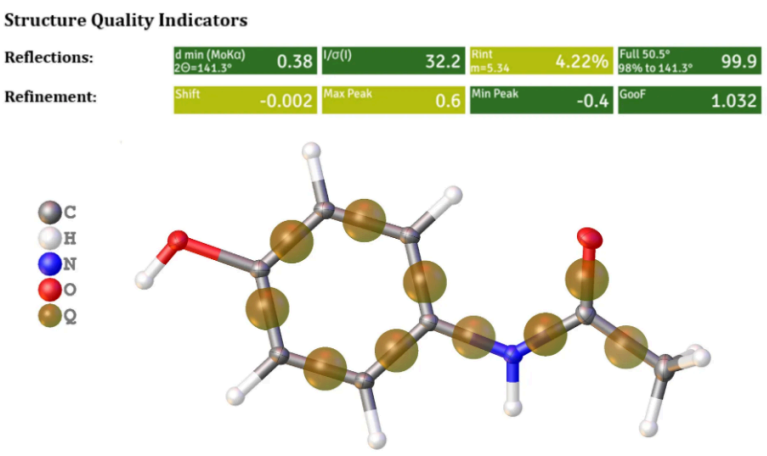


Poster

Phase Diagram-Guided Microbatch-Under-Oil Crystallization and Seeding Strategies for High-Quality Small Molecule Crystal Growth Using the Douglas Instruments Oryx8 Platform

Kasun.S Athukorala Arachchige [1] , Patrick Shaw Stewart [2]
[1] The University of Queensland, [2] Douglas Instruments
Part of poster session 2B
Thursday August 13th 5:00 PM - 6:00 PM MDT

For those interested in **small-molecule and inorganic crystallography**, this poster highlights how phase diagram-guided experiments using seeding and microbatch can produce larger, better-defined crystals with improved reproducibility. Using paracetamol as a model system, the method enabled exceptionally high-resolution X-ray diffraction and demonstrated a scalable approach for advanced structural studies.
(Abstract)

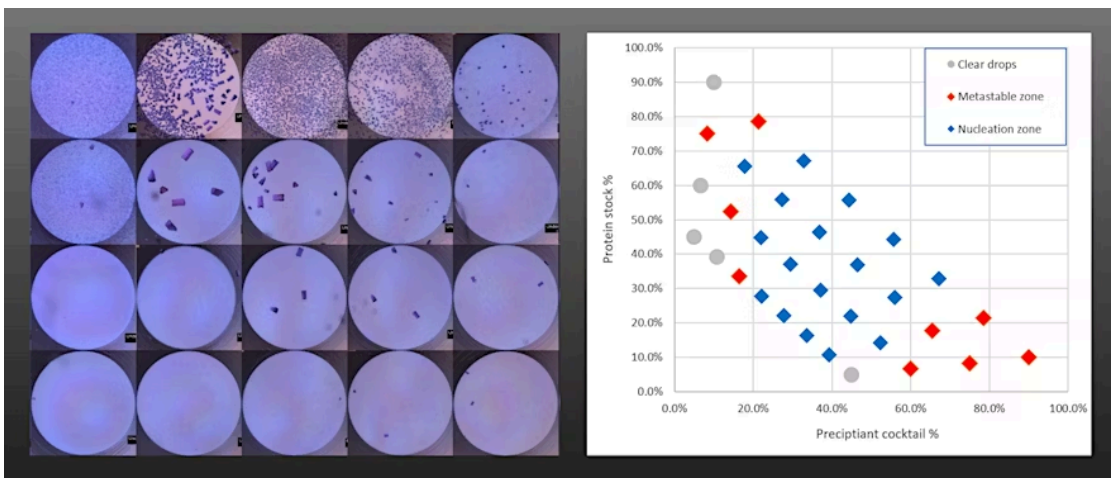


Workshop

Using microseeding for routine and advanced preparation of protein crystal samples

Patrick Shaw Stewart, Douglas Instruments
Workshop 011
Monday August 10th 8:30 AM - 5:00 PM MDT

Serial data collection and microED techniques typically require “slurries” of tiny, well-ordered crystals. Neutron diffraction requires very large single crystals. Creating samples for these techniques is often a complex process that requires multiple rounds of optimization. To guide them in this task, protein crystallizers often keep a notional phase diagram in mind, which has four zones: an undersaturated zone where protein always remains in solution, a metastable zone where crystals will grow when seeds are added, a crystal nucleation zone where crystals appear spontaneously, and a protein precipitation zone. However, the shape of real-life phase diagrams can vary, making the interpretation of experimental results difficult.



Get a seminar for your lab!

Meetings, Conferences and Workshops

Visit our booth for the latest on our new experiment scripts for phase diagram optimization and other developments.

Also pick up a free toolkit for **rMMS microseeding** from our booth!

IUCr 2026, Calgary, Canada
11 August – 19 August 2026

ISBC 2026, Granada, Spain
4 October – 9 October 2026

We look forward to seeing you there!

Best regards,

Douglas Instruments
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