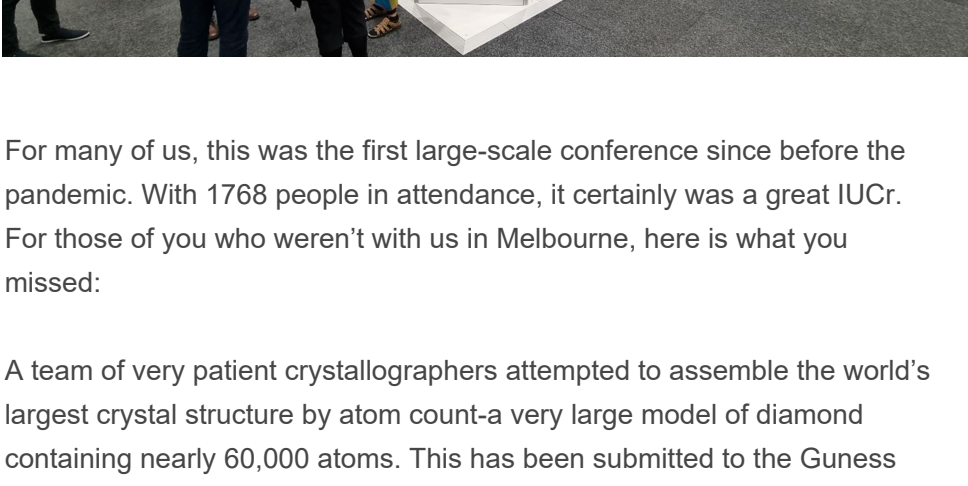


Volume 15, No. 8, August 2023

## WELCOME

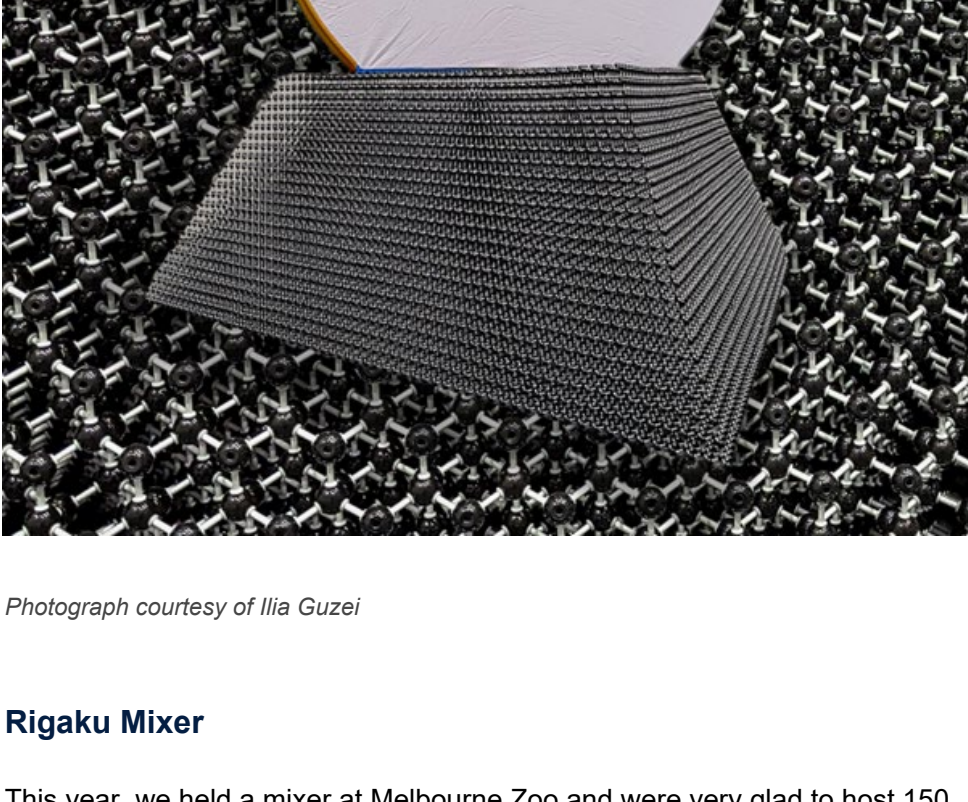
### IUCr 2023

Wow! What a week! It was great to see everyone in Melbourne at the IUCr. We had some great conversations, saw some great talks and enjoyed some great evenings with friends old and new. Our booth was a very international effort to match the congress, with colleagues of many nationalities, including Australian, Japanese, American, French, German and British.



For many of us, this was the first large-scale conference since before the pandemic. With 1768 people in attendance, it certainly was a great IUCr. For those of you who weren't with us in Melbourne, here is what you missed:

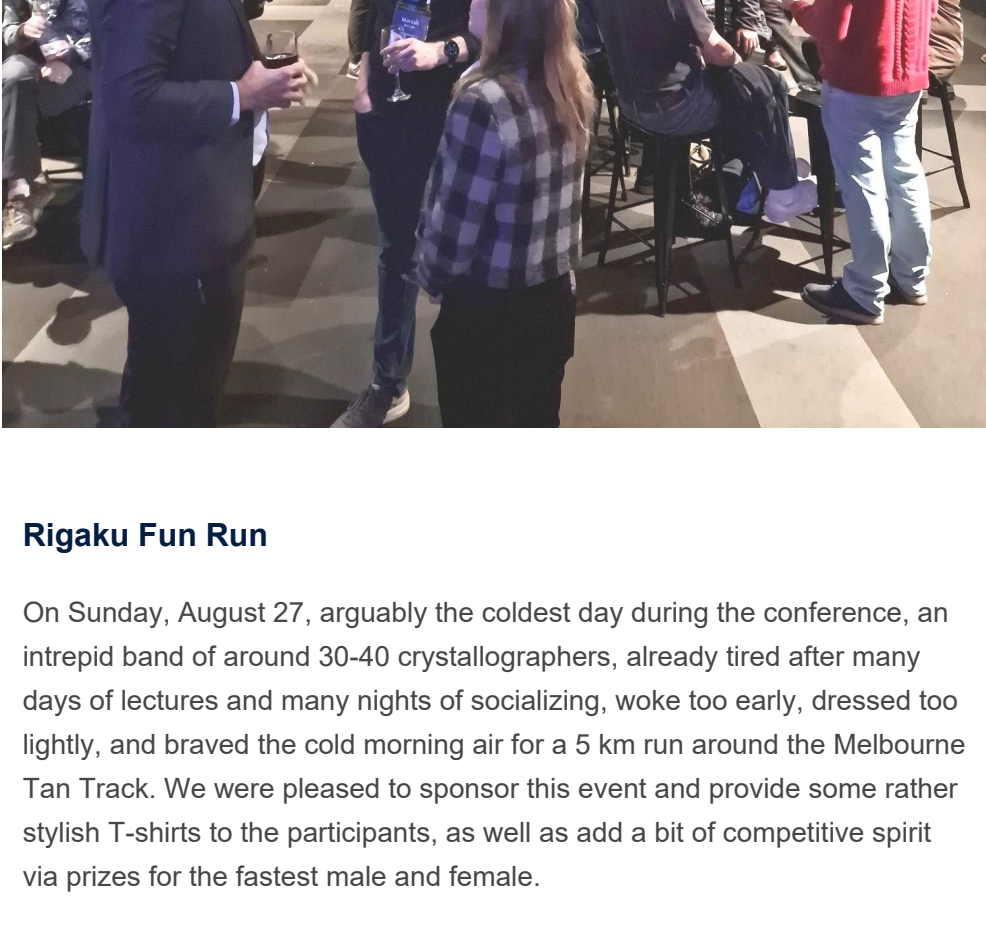
A team of very patient crystallographers attempted to assemble the world's largest crystal structure by atom count—a very large model of diamond containing nearly 60,000 atoms. This has been submitted to the Guinness Book of World Records. After nearly a week-long build, the model was broken down at the end of the exhibition and is to be packaged into smaller kits and donated to schools for children to use in lessons, which we think was an amazing idea: to not only reuse the model but also further crystallographic and chemical education.



Photograph courtesy of Iliia Guzei

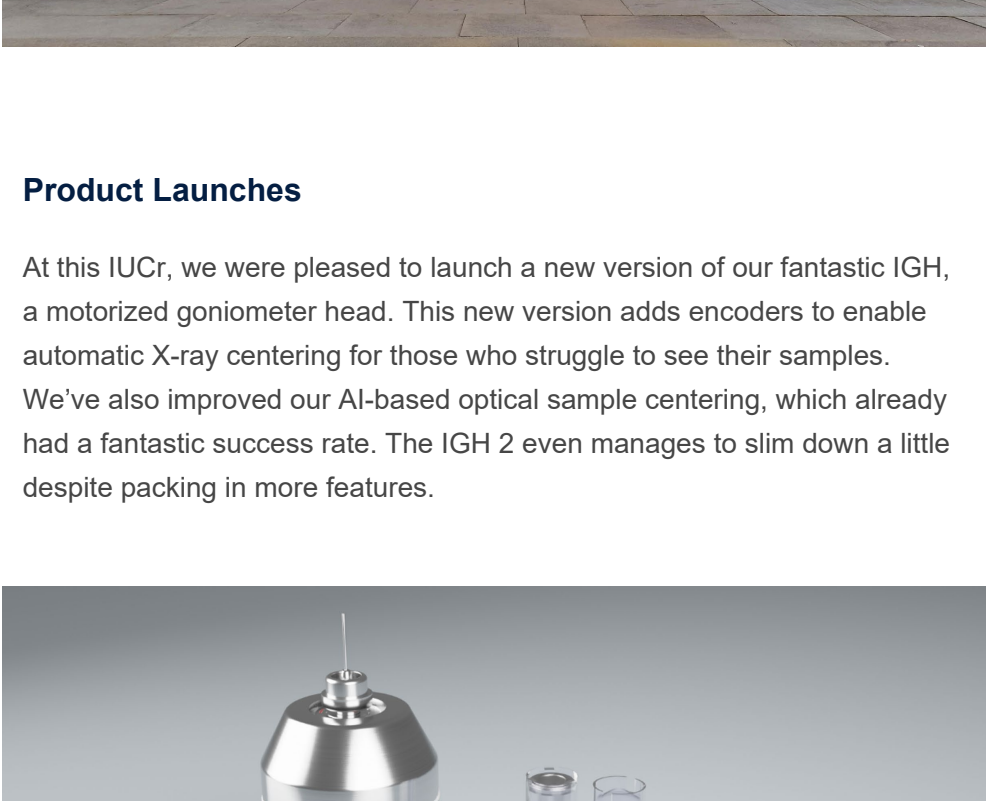
### Rigaku Mixer

This year, we held a mixer at Melbourne Zoo and were very glad to host 150 attendees. We initially underestimated demand and, midway through the conference, when tickets were like gold dust, we renegotiated with the venue to squeeze in more people. It's a shame we didn't quite have enough space for everyone who wanted to come. Food, drink and sparkling conversation were flowing all night and the event was a great success.



### Rigaku Fun Run

On Sunday, August 27, arguably the coldest day during the conference, an intrepid band of around 30-40 crystallographers, already tired after many days of lectures and many nights of socializing, woke too early, dressed too lightly, and braved the cold morning air for a 5 km run around the Melbourne Tan Track. We were pleased to sponsor this event and provide some rather stylish T-shirts to the participants, as well as add a bit of competitive spirit via prizes for the fastest male and female.

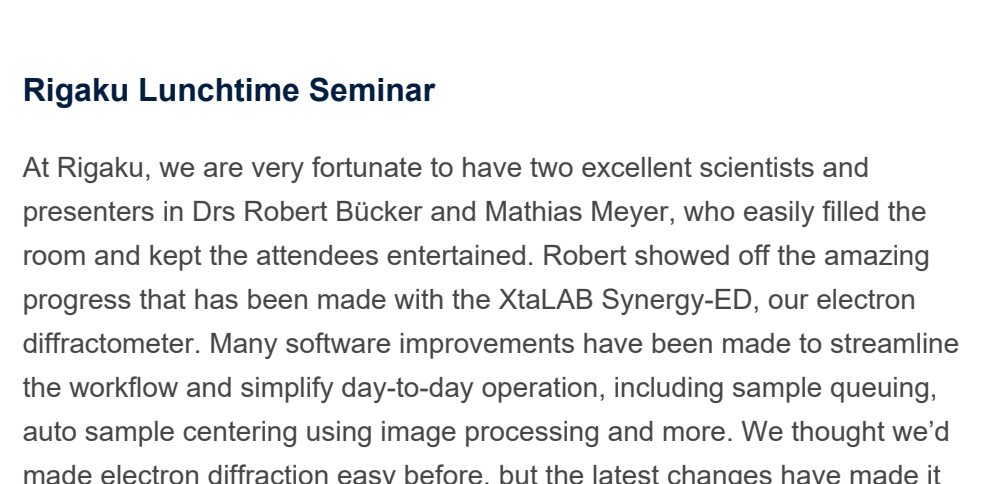


### Product Launches

At this IUCr, we were pleased to launch a new version of our fantastic IGH, a motorized goniometer head. This new version adds encoders to enable automatic X-ray centering for those who struggle to see their samples. We've also improved our AI-based optical sample centering, which already had a fantastic success rate. The IGH 2 even manages to slim down a little despite packing in more features.



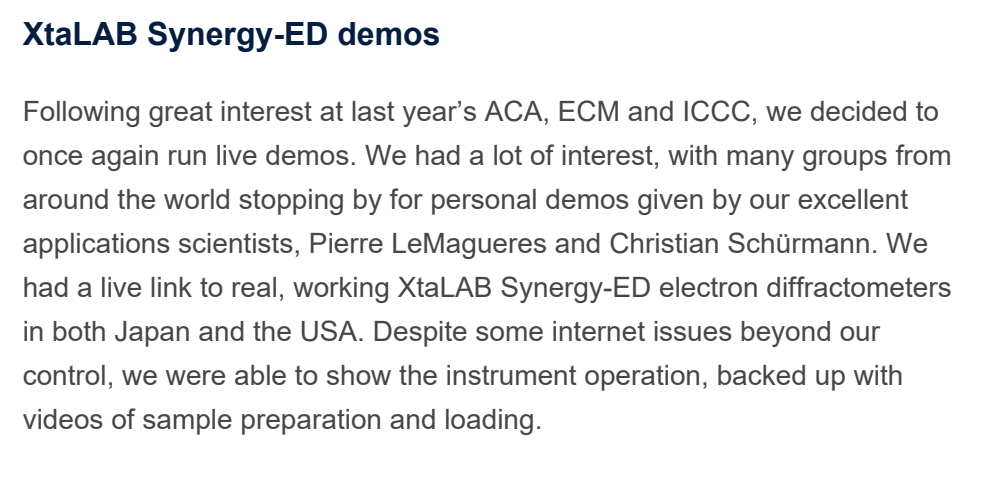
We also launched a new automatic optic alignment system for X-ray sources that allows you to easily optimize your X-ray source at the click of a button. Any time you are even a little curious, you can be sure you are getting the best out of your source after one click and a few minutes of automated optimization. iOptiX is available on our PhotonJet-R and PhotonJet-DW rotating anode sources and, as such, supports single- and dual-wavelength configurations.



### Rigaku Lunchtime Seminar

At Rigaku, we are very fortunate to have two excellent scientists and presenters in Drs Robert Bücker and Mathias Meyer, who easily filled the room and kept the attendees entertained. Robert showed off the amazing progress that has been made with the XtaLAB Synergy-ED, our electron diffractometer. Many software improvements have been made to streamline the workflow and simplify day-to-day operation, including sample queuing, auto sample centering using image processing and more. We thought we'd made electron diffraction easy before, but the latest changes have made it even easier.

Mathias gave updates on the latest developments in our X-ray products and software. Our CrysAlis<sup>PRO</sup> team doesn't rest on their laurels and have been making a whole raft of improvements throughout the software, such as AI features for an automatic sample shape algorithm that can distinguish crystal from sample mount and give you a nice, automated sample shape description with minimum effort. We've also improved AutoChem, made our chemical formula editor smarter and made some speed improvements to data processing. I'm not sure when or even if our software team sleeps.



### XtaLAB Synergy-ED demos

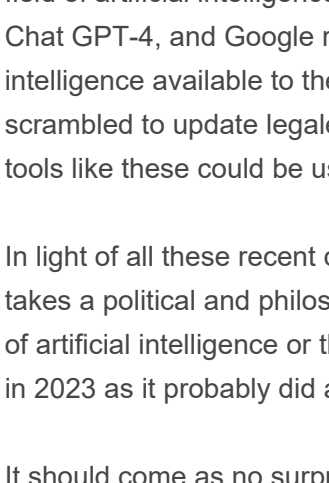
Following great interest at last year's ACA, ECM and ICCG, we decided to once again run live demos. We had a lot of interest, with many groups from around the world stopping by for personal demos given by our excellent applications scientists, Pierre LeMagueres and Christian Schürmann. We had a live link to real, working XtaLAB Synergy-ED electron diffractometers in both Japan and the USA. Despite some internet issues beyond our control, we were able to show the instrument operation, backed up with videos of sample preparation and loading.

There was so much going on that it's hard to capture it all. Many fantastic prize talks, plenaries and keynotes. An inspiring crystallographic education session. The amazing outreach section of the exhibit, bringing school children in and giving them a glimpse into a world of possibilities. We also had a little fun competing with each other on the CCDC leaderboard (but we're not telling you who won!). And, of course, our friends at DECTRIS put on an entertaining event worthy of its own newsletter.

The next IUCr will be in Calgary in 2026. We know the organizers have already started working on the program and we expect an even better in-person experience.

Cheers,  
Fraser White

## BOOK REVIEW



Review: [The Age of AI: And Our Human Future](#)  
By Henry A. Kissinger, Eric Schmidt, and Daniel Huttenlocher  
ISBN: 9780316293992

*The Age of AI: And Our Human Future* seems to be a product of the time in which it was written, in 2021. Even though that might seem recent (less than two years ago at the time of this review), in some ways it reads as much older.

It's no fault of the authors that tremendous strides have been made in the field of artificial intelligence just in 2023 alone. In March, OpenAI released Chat GPT-4, and Google released Bard, making advanced artificial intelligence available to the masses. Companies across industries scrambled to update legalese and documentation regarding what AI-based tools like these could be used and how.

In light of all these recent developments, a book like *The Age of AI*, which takes a political and philosophical approach to considering the implications of artificial intelligence or the future of humanity, doesn't quite hit the same in 2023 as it probably did at the time of its publication.

It should come as no surprise that a book co-authored by a historical figure as well-known as Henry Kissinger reads as politically as it does. Per the authors' preface, the book seeks to explain the concept of artificial intelligence and spur the reader to ask important questions about how AI will impact them in their daily life, as well as how AI will impact them globally. But the truth is, the authors pose these sorts of questions— "what do AI-enabled best friends look like, especially to children?", for example—but don't answer them meaningfully. One can't help but think about the hit 2023 horror movie *M3GAN* when that question gets asked.

For a much more compelling dive into AI, Amy Webb's *The Big Nine*, which interestingly enough came out back in 2019, has a much more experimental approach to predicting the impact of artificial intelligence on human existence.

Review by Jeanette S. Ferrara, MFA

## RIGAKU TOPIQ WEBINARS

Rigaku has developed a series of [20–30 minute webinars](#) that cover a broad range of topics in the fields of X-ray and electron diffraction, X-ray fluorescence and X-ray imaging. You can watch [recordings of our past sessions](#) here.

### UPCOMING WEBINAR: TOPIQ | 3D-ED in Pharmaceutical Compounds: Can we Measure Everything?

Thursday, September 7, 2023 - 4PM CEST

Our first installation of XtaLAB Synergy-ED in Europe was successfully completed this summer at ICIQ in Spain. We've invited Jordi to share his experiences with you all. [Register now](#)

### UPCOMING EVENTS: Rigaku European Single-Crystal Users' Meeting

Warwick University, UK, September 11-12, 2023.

[80<sup>th</sup> Pittsburgh Diffraction Conference](#), Pittsburgh, PA, October 15-17, 2023.

[SERMACS 2023](#), Durham, NC, October 25-28, 2023.

[Rayons X et Matière 2023](#), Bordeaux, France, November 21-24, 2023.

## CRYSTALLOGRAPHY IN THE NEWS

**August 2, 2023**  
Scientists from Germany have synthesized [18-member Sr, Sm and Eu cycloenes](#), which are expected to have interesting physical and chemical properties.

**August 3, 2023**  
Researchers from The Scripps Research Institute have engineered a [human-antibody fragment with fenanyl pan-specificity](#) that reverses carfentanil-induced respiratory depression.

**August 16, 2023**  
Scientists from the University of California Berkeley have synthesized and characterized a series of [high-entropy halide perovskite single crystals](#) with interesting electrooptical properties.

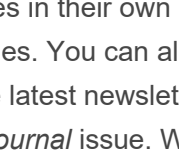
## USEFUL LINKS

In addition to the war in Ukraine, we have another humanitarian crisis in Sudan. It seems that medical aid is the most critical need now. [Doctors without Borders](#) is a reputable organization and is providing aid in Sudan.

Here is a link that provides useful information regarding relief efforts for Ukraine: [Here's how you can help the people of Ukraine: NPR](#)

## FOLLOW US ON TWITTER

To keep up to date on the latest news and events from Rigaku Oxford Diffraction, follow our Twitter feed.



## JOIN US ON LINKEDIN

Our [LinkedIn group](#) shares information and fosters discussion about X-ray crystallography and SAXS topics. Connect with other research groups and receive updates on how they use these techniques in their own laboratories. You can also catch up on the latest newsletter or *Rigaku Journal* issue. We also hope that you will share information about your own research and laboratory groups.



## RIGAKU X-RAY FORUM

At [Rigakuxrayforum.com](#) you can find discussions about software, general crystallography issues and more. It's also the place to download the latest version of Rigaku Oxford Diffraction's CrysAlis<sup>PRO</sup> software for single crystal data processing.

