



# CRYSTALLOGRAPHY TIMES

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## WELCOME

For the first time since 2019, the BCA Spring Meeting was held in person, this time at the University of Leeds. This meeting was originally supposed to happen at Leeds back in 2020 but, with only around a month to go, the BCA decided to postpone to 2021 in the face of the global pandemic. Little did we know then that it would end up being two years before the meeting would actually happen. A small group including myself, Dr. Mark Benson and Dr. Christian Schürmann attended. This was the first in-person meeting I've been to since before the pandemic and, though we've all gotten used to using tools like Zoom to continue to meet and exchange ideas and knowledge, it was reassuringly familiar to chat with friends and colleagues face to face once again. Having a slight return to normalcy was very welcome and we look forward to more conferences and meetings over the summer.

Fraser J. White

## RESEARCHER IN THE SPOTLIGHT

[Professor Elspeth Garman](#)



**Elspeth with Myrtle, an RU-200, at the time of the latter's retirement with over 100,000 hours over 12 years of operation.**

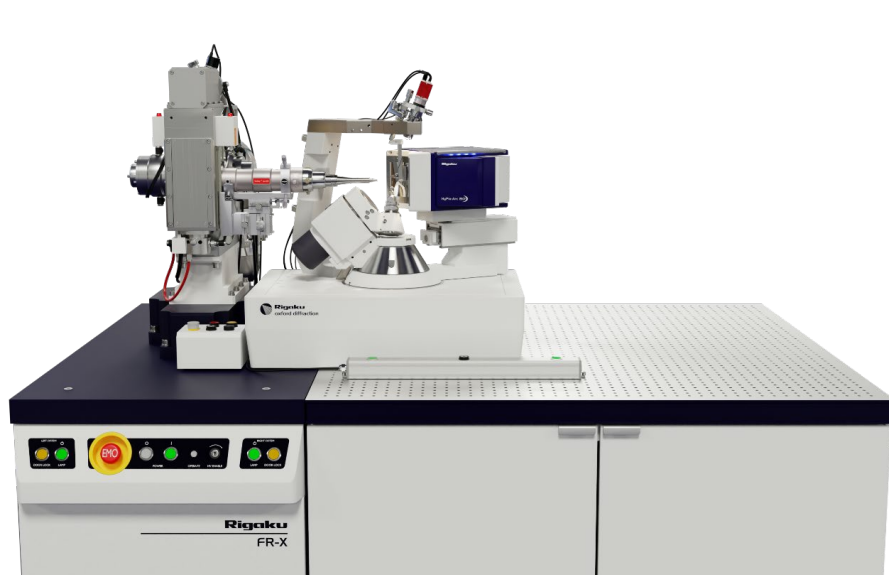
During the BCA we learned that Professor Elspeth Garman has now retired, having reached a slightly different "Garman limit" from the one for which she is famous. Elspeth has enjoyed a career arrayed with awards and prestigious publications, including the 2006 paper establishing the radiation dose limit for cryocooled protein crystals, the aforementioned Garman limit. Elspeth began her career not in structural biology, for which she is now primarily known, but as a nuclear physicist. Having studied physics at Durham University (graduating in 1976), Elspeth moved to the University of Oxford for a doctorate in nuclear physics, which she completed in 1980. Seven years later, Elspeth made the switch to biophysics at the Laboratory of Molecular Biophysics, making many contributions to the advancement of macromolecular crystallography.

Elspeth has also been an active member of the community, serving as the president of the BCA from 2009 until 2012, and has done a lot of public engagements, appearing in no less than 40 broadcasts on both radio and TV.

We wish Elspeth all the best for her retirement, and we hope to see her around as conferences start to become a fixture on our calendars again.

## PRODUCT IN THE SPOTLIGHT

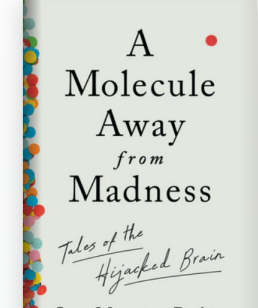
[XtaLAB Synergy Custom](#)



The [XtaLAB Synergy Custom](#) is the instrument of choice for those who need a little extra flexibility from their diffractometer. With a larger cabinet, the XtaLAB Synergy Custom can support our highest-performance sources, as well as a host of attachments and accessories. The XtaLAB Synergy Custom uses the same core technologies as the other instruments in the XtaLAB Synergy range, and is built around our highly reliable and fast goniometer. Choose from our [MicroMax-007 HF](#) or [FR-X](#) high-performance rotating anode solutions for the highest flux of any X-ray source. Pair your choice of source with a [HyPix-6000HE](#), [HyPix-Arc 100°](#) or [HyPix-Arc 150°](#) detector for noise-free direct X-ray photon counting. If you need something a little different, let us know your requirements and we can discuss options.

For those interested in conducting non-standard experiment types that require additional equipment and/or the highest-performance X-ray sources, the XtaLAB Synergy Custom is the perfect choice.

## BOOK REVIEW



[A Molecule Away from Madness: Tales of the Hijacked Brain](#)

By Sara Manning Peskin  
ISBN 978-1-324-00237-6

Sara Manning Peskin's *A Molecule Away from Madness: Tales of the Hijacked Brain* is an intriguing collection of anecdotes exploring the experiences of real patients with various neurological conditions. The potency of Peskin's work comes from the emotional and critical realism with which these stories are told. These patients are more than exemplary instances of conditions ranging from Huntington's to Creutzfeldt-Jakob disease; they are people, and Peskin offers her readers enough insights into their lives to make the impact of their prognoses and diagnoses that much more compelling.

Peskin begins with a brief introduction in which she eloquently articulates the basic biology behind inception, cellular growth, and early neurological development. She lays the foundation for the concept that drives the rest of the book—the idea that "the very molecules that make our brains work can also co-opt our personalities and destroy our ability to think." Peskin offers an illustrative definition of a molecule, explaining that her book is about "molecular villains" whose incredibly small size is directly disproportionate to the momentous impact they can have on the mind's ability to function as expected. She divides these molecular villains into four categories: mutants, which are altered sequences of DNA; rebels, which are aberrant proteins; invaders, which are small molecules that aren't meant to be in the brain; and evaders, which are small molecules that are meant to be in the brain but are missing for some reason.

Peskin breaks the narrative into three parts. Each part begins with a brief introduction explaining the foundational concepts the reader will need to understand in order to fully comprehend the anecdotes that follow in the section. The first part covers DNA mutants, telling the stories of patients diagnosed with Huntington's disease, Alzheimer's disease, and Pick's disease. The second part covers rebellious proteins and features a patient whose brain was attacked by an antibody that had similar psychological effects as PCP, causing her to believe the world was plagued by a zombie apocalypse. Another patient's immune system generated an antibody that blocked his receptors, causing a number of physical and psychological changes that led him to require intubation. Peskin ends the section with some stories about prion diseases like kuru and Creutzfeldt-Jakob. The third and final part of the book covers invaders and evaders. In it, Peskin covers mercury poisoning, illustrated with a very interesting presidential anecdote, as well as thiamine deficiency and pellagra.

Peskin's epilogue begins grimly: "The life expectancy of an Alzheimer's disease patient has changed little since the condition was discovered more than a century ago." However, she still manages to reassure the reader that, although this may be the case, scientists and medical researchers now better understand the human mind, how it works, and what causes it to break, so to speak, than they did a hundred years ago. And the more they seek to understand, the better equipped they will be to improve prognoses over the next hundred years for all patients diagnosed with neurological conditions.

*A Molecule Away from Madness* is beautifully written, with elegant and compelling prose one can easily get lost in. The terrifying reality of the true fragility of the human mind is easier to digest with Peskin's tactful and measured delivery.

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 diffraction, X-ray fluorescence and X-ray imaging. You can register [here](#) and also watch recordings if you cannot attend live sessions.

## VISIT US AT:

[5<sup>th</sup> International School on Aperiodic Crystals](#), Kutna Hora, Czechia, May 23-27.

[Canadian Chemical Crystallography Workshop](#), Calgary, AB, Canada, June 9-12.

[ACA Summer Course for Chemical Crystallography](#), West Lafayette, IN, June 12-18.

[Canadian Chemistry Conference and Exhibition 2022](#), Calgary, AB, Canada, June 13-17.

[ACA Annual Meeting](#), Portland, OR, July 29-August 3.

[33<sup>rd</sup> European Crystallographic Meeting](#), Versailles, France, August 23-27.

[44<sup>th</sup> International Conference on Coordination Chemistry](#), Rimini, Italy, August 28-September 2.

[8<sup>th</sup> International Conference on Metal-Organic Frameworks and Open Framework Compounds](#), Dresden, Germany, September 4-7.

[The Pittsburgh Diffraction Conference](#), Lemont, IL, October 2-4.

## CRYSTALLOGRAPHY IN THE NEWS

**February 16, 2022:** Researchers from Israel and Laos report on the [interaction of bat coronaviruses related to SARS-CoV2 and human angiotensin-converting enzyme](#).

**April 14, 2022:** Scientists from Israel report on the [diffusion of ions controlling asymmetrical growth of microscopic calcite crystals in coccoliths](#).

**April 21, 2022:** Scientists from Australia, China and the US report on the [electro-optical properties of a designed ferroelectric phase of relaxor lead titanate](#).

**April 27, 2022:** Researchers in Japan have determined the structure of a [tRNA from a thermophile](#) that is stabilized at high temperatures by reversible RNA phosphorylation.

## USEFUL LINKS

**Here links to organizations helping Ukrainians survive the ongoing war in their homeland:**

- [Help Humanitarian Efforts in Ukraine](#)
- [Donate to Children of Ukraine](#)
- [Nova Ukraine](#)
- [Razom for Ukraine](#)
- [World Central Kitchen](#)
- [Global Giving](#)
- [International Committee of the Red Cross](#)

## 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.

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## 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 CrysAlisPro software for single crystal data processing.

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