



CRYSTALLOGRAPHY TIMES

Volume 14, No. 1, January 2022

WELCOME

As I write this, we are halfway through the January 2022 edition of the Rigaku School for Practical Crystallography. We are seeing between 400 and 500 students each day, and most are new students. It is exciting to see that there is still so much interest in learning crystallography, from all over the globe, even after two years after the onset of the pandemic.

In this month's newsletter, we highlight Professor Sue-Lein Wang from NTSU in Taiwan. Our product in the spotlight is the XtaLAB Synergy-DW VHF. Our videos this month include a lecture by Don Caspar, who recently passed away, and a second video honoring Dorothy Hodgkin as told by Georgina Ferry. We have the usual roundup of crystallographic papers and a review of *The Diet Myth*.

I am putting the finishing touches on this introduction on January 17, Martin Luther King Day here in the United States. I would like to take a moment to commend the American Crystallographic Association and the U.S. National Committee for Crystallography on their efforts in enhancing Diversity, Equity and Inclusion within their respective purviews.

Joe

LABORATORY IN THE SPOTLIGHT

Professor Sue-Lein Wang
National Tsing Hua University in Taiwan



Sue-Lein Wang, a distinguished chair professor and researcher in the department of chemistry at the National Tsing Hua University in Taiwan, is a new Rigaku customer. A XtaLAB Synergy-DW VHF was recently installed in the chemistry department to support the highly active research at National Tsing Hua University. Dr. Christian R. Göb, Application Team Leader Single Crystal Diffraction for Rigaku Europe, provided virtual training for the X-ray facility.



Just before the emergence of COVID-19, Wang received the Outstanding Alumni Award from the Department of Chemistry, Iowa State University in a ceremony held in Ames, Iowa. The award recognizes outstanding alumni and is a credit to her successful career in chemistry since receiving her Ph.D. in physical chemistry from Iowa State University.



Wang has conducted frontier research in the field of inorganic solids since 1986. Among her many scientific breakthroughs, Wang was the first to discover that zeolite-like inorganic frameworks can be a single source of emitting white light without adding any lanthanide dopants. She also pioneered the discovery and innovation to make color conversion phosphors for light emitting diodes, and championed research in luminescence of nanoporous inorganic framework materials.

Wang has been recognized with a Taiwan Outstanding Women in Science Award from the Wu Chien-Shiung Education Foundation, as well as an Outstanding Research Award from the National Science Council. She is passionate about encouraging young women to pursue careers in the STEM fields. She gives talks in many high schools and invites high school students to conduct research with her on various chemical science projects.

Rigaku is happy to have Wang and her group join the Rigaku family, and we expect to see great research to continue to come forth from National Tsing Hua University.

PRODUCT IN THE SPOTLIGHT

XtaLAB Synergy-DW VHF

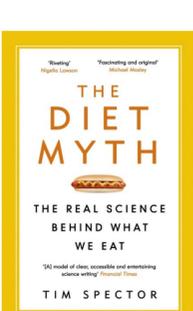
Dual wavelength rotating anode X-ray diffractometer with HPC X-ray detector



The introduction in 2004 of the Oxford Diffraction Gemini diffractometer, with two independent X-ray sources, was a watershed moment in crystallographic instrumentation. The groundbreaking design of the Gemini suddenly gave crystallographers the ability to easily switch between Cu and Mo wavelengths and greatly expanded the experimental flexibility available for analyzing single crystal samples. The XtaLAB Synergy-DW VHF is an evolution of that revolutionary idea which retains the flexibility of the dual wavelength capability but in addition adds the exceptional flux enhancement of a reliable, rotating anode X-ray source. It is the perfect diffractometer for a core facility where protein crystallography and small molecule crystallography are both practiced.

[Read More >](#)

BOOK REVIEW



The Diet Myth

By Tim Spector, Weidenfeld & Nicolson, London, 2015, 323 pp
ISBN: 978-1-780-22900-3

This book came to me highly recommended by Stan Cameron, probably because I have been a fan of low carb diets. Since many of us try to lose weight as part of our New Year's resolutions, I thought this might a good book for the January newsletter.

The author has run the [twinsUK](#) program for more than two decades, and has a wealth of data from which to draw. He uses this data, as well as information from many other sources, to answer why some people are thin and others are not. First the author asks the question why are "calories in" not equal to "calories out?" Spector spends considerable time looking at the diets popular at the time the book was written, 2015, as well as many of the different food items modern humans eat—natural and otherwise.

Based on the differences between morphologies of twins and their microbiomes, Spector concludes that the best diet secret is not necessarily what you eat but what tags along with the food you eat. In other words, eat lots of natural foods along with the natural microbes that come along with them and you will be healthier and probably less overweight. As Spector wrapped up, I began to wonder when he would bring up Michael Pollan's adage "Eat food. Not too much. Mostly plants." Pollan says that food should not contain ingredients your grandmother couldn't identify, and Spector adds that you should treat your microbiome the same way. Food for thought (pun intended).

Joe Ferrara

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.

CRYSTALLOGRAPHY IN THE NEWS

December 1, 2021: Researchers from France determined the crystal structure of the [eukaryotic 80S ribosome in a translocation-intermediate state](#) in order to understand the accuracy of translocation.

December 8, 2021: Researchers in Ukraine and the U.S. have determined the structure of the [σ₂ receptor](#) and validated procedures to test docking against a library of 490 million virtual molecules.

December 16, 2021: Scientists from Canada, China, Germany and Sweden [have synthesized and characterized a MOF](#) that selectively takes up carbon dioxide over water.

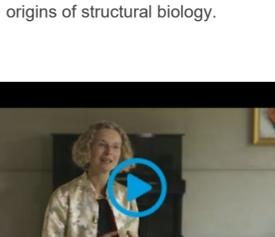
January 7, 2022: Researchers in France and the U.S. have used X-ray diffraction to understand [how human antibodies neutralize Crimean-Congo hemorrhagic fever virus](#).

VIDEOS OF THE MONTH



Donald Caspar, ACA 2012 Annual Meeting, Boston, MA
"Origins of Structural Biology and Trials and Errors in its History: an idiosyncratic view"

In memoriam to Don Caspar, who recently passed away, this month's video is of a lecture he gave in 2021 concerning the origins of structural biology.



Why was Dorothy Hodgkin's research revolutionary?

Science writer, broadcaster and Dorothy Hodgkin's biographer, Georgina Ferry, shares why Hodgkin's research was compared to "breaking the sound barrier" for her field.

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.

[JOIN HERE](#)

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^{Pro} software for single crystal data processing.

[JOIN HERE](#)

[Subscribe to Rigaku newsletters!](#)

