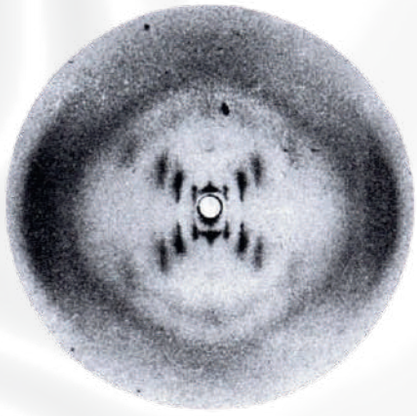
Hay's Day • Gazette QEM2025

Elisabeth D. Hay (1927 – 2007)

Betty attended Smith College in 1944, and met biology professor Meryl Rose, who became her scientific mentor. In 1952, she was awarded her MD degree, being only one of four women in the class. She stayed on at Johns Hopkins for a year of internship, then, in 1953, was appointed as an instructor of Anatomy. The next year, she attended a meeting where Keith Porter showed electron micrographs of cytoplasmic structures. This caught her attention. Betty's words were, "I came back and, wow, from then on it was electron microscopy for me" . She located the only electron microscope at Johns Hopkins in the School of Public Health, and began using it.

In the introduction to the book she edited, "Cell Biology of the Extracellular Matrix (first edition 1981, second edition 1991), Betty states that, "Cytoskeleton, cell shape, cell migration, control of cell growth and differentiation, these are all subjects that, to be fully understood today, require a consideration of the extracellular matrix (ECM): its composition, role in development and relationship to the cell surface."

Image of the Day



Rosalind Franklin discovered some key properties of DNA at King's College in London, which eventually facilitated the correct description of the double helix structure of DNA. Owing to disagreement with her colleague Maurice Wilkins (Nobel Prize in 1962 for DNA structure discovery), Franklin was compelled to move to Birkbeck College in 1953.

Today's Program

9:00 Quantitative Diffraction
by *Damien Jacob*

11:00 Electron Cristallography
by Lukas Palatinus

14:00 Electron Precession introduction
by Edgar Rauch

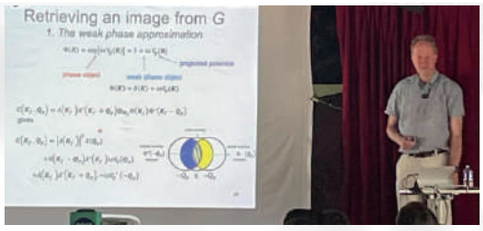
16:00 ***Practicals***

4D-STEM treatment (PC#1)
Felix Bennemann & Max Leo Leidl
Electron Precession (PC#2)
Muriel Veron, Edgar Rauch & Arthur Després
Cristallography (PC#3)
Damien Jacob & Lukas Palatinus
4D-STEM (Jeol)
Saleh Gorji & Martien den Hertog
4D-STEM (Thermofisher)
Antonin Louiset
4D-STEM (Tescan)
Daniel Stroppa
Cathodoluminescence & MaïTaï (Bar)
Sophie Meuret

It happens the same day

Pierre Curie was born the May 15th 1859. He was a French physicist, radiochemist, and a pioneer in crystallography, magnetism, piezoelectricity, and radioactivity. He shared the 1903 Nobel Prize in Physics with his wife, Marie Curie, and Henri Becquerel "in recognition of the extraordinary services they have rendered by their joint researches on the radiation phenomena discovered by Professor Henri Becquerel.

Words of Yesterday



"The G, it is the most important point to understand."

Peter Nellist

Views of Yesterday

Pinguins taking care of gazette late at night

First Practical session is over : now you know that you don't know you know how to know for now and tomorrow.

Teacher's Interviews

Lukas Palatinus

Best memory of electron microscopy?

My best memory of electron microscopy is actually not from a microscope, but from a computer. It was the moment when I saw, for the first time, the signal of hydrogen atoms in the structure obtained from data collected by 3D electron diffraction. Looked like cathodoluminescence.

How a microscopy lab will look like with AI in 20 years?

I might be becoming old-school and not sufficiently imaginative, but I don't think there it will be a bigger difference than between the lab say 20 years ago and now. In the last 20 years, an incredibly lot has changed in technology and *methods.* AI will be a dramatic development, too. It will automate many, if not all routine tasks. It will improve the results. Allow us to detects unseen relationships in the data. But the master operator, the decision maker, the interpreter of the results, all this will still be human, the scientist.

Aside from Cathodoluminescence which techniques you always wanted to learn and didn't?

Ptychography. But there is still hope. Dum spiro spero!

Wave or Particle?

Wave. No doubt.

Damien Jacob

Best memory of electron microscopy?

Seeing « live » the phase transformation of a quartz specimen from the low temperature beta phase (trigonal) to the high temperature Alpha phase (hexagonal). Looks like a wave passing through the sample…

How a microscopy lab will look like with AI in 20 years?

Beyond data handling, AI will certainly be integrated into microscope operation and the automation of certain types of observations. This will change the way we work. However, we will still need (human) operators for fine-tuning depending on the specifics of the sample, and researchers to design new experiments.

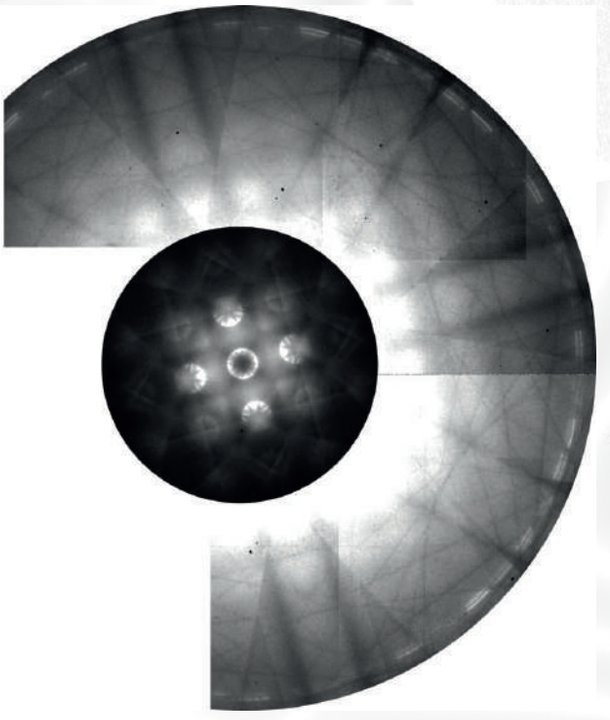
Aside from Cathodoluminescence which techniques you always wanted to learn and didn't?

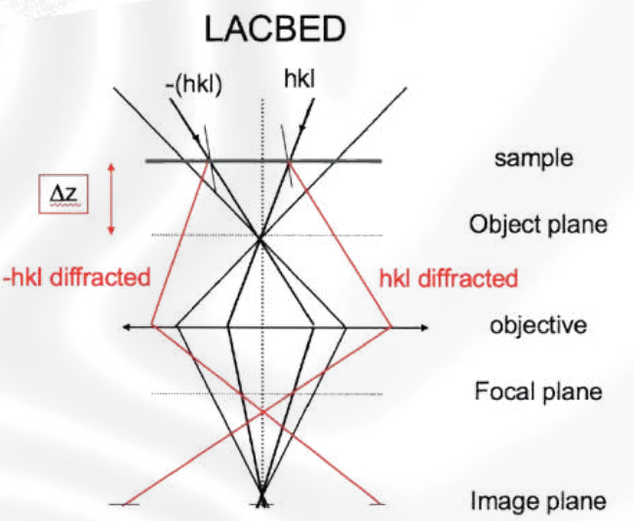
I would have love doing a FIB sample by myself.

Wave or Particle?

I am feeling more and more like a cathodoluminescent wave.

Teacher's Question's



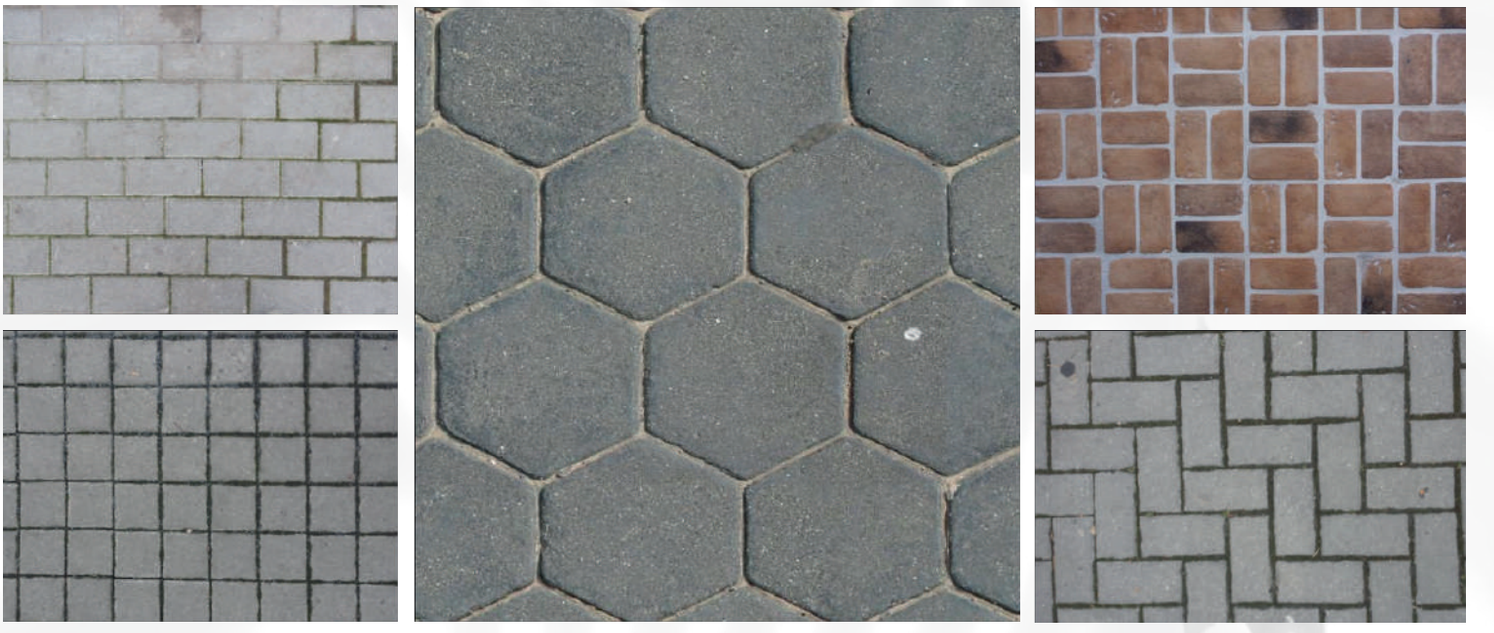


Wich aperture should we insert to prevent superposition of excess and deficiency lines ?

A: selected area
B: objective aperture (BFP)

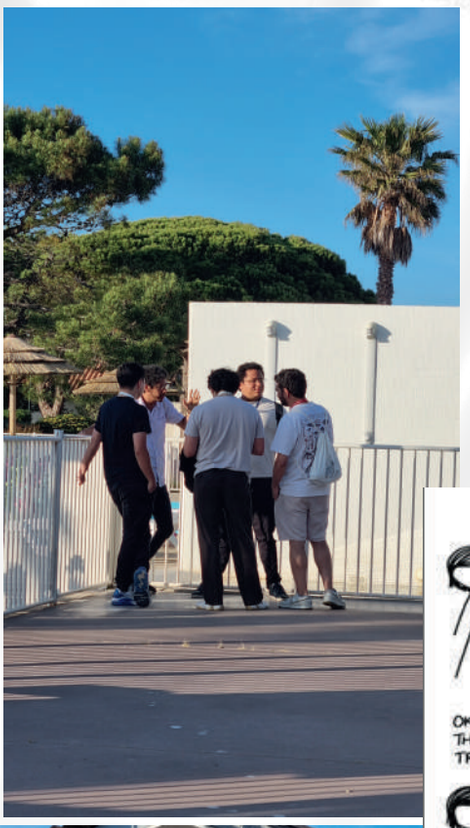
What is the symmetry of this whole pattern ?
Does it carry 2D or 3D information about the specimen crystallography?

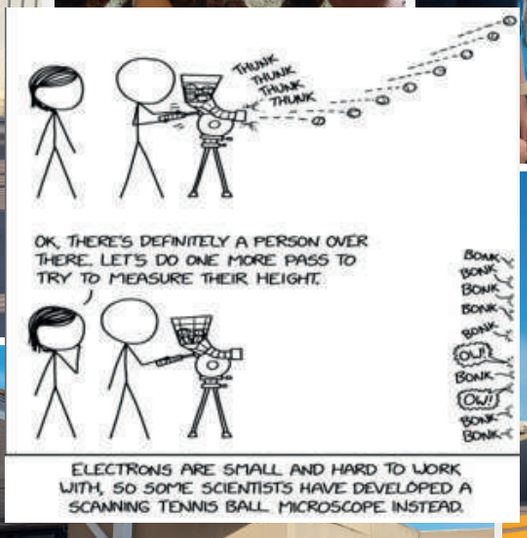
Answers will be given during the practical.



Symmetry determination is an important part of crystallography. Here are five images of pavements, each with a different tiling pattern. What symmetry elements can you see? What are the plane groups? The two on the right are especially tricky…

Pics of yesterday





Advertisement and News :

There will be a prize for the best Pic ever on the app Gallery. Submit and Vote !

Looking for Pétanque tournament organizers.

If you want a picnic instead of your lunch, it has to be ordered in the morning the day before.

Weather Forcast

24 °C outside sea, 17°C inside sea

The French Alternative Energies and Atomic Energy Commission, or CEA (French: Commissariat à l'énergie atomique et aux énergies alternatives), is a French public government-funded research organisation in the areas of energy, defense and security, information technologies and health technologies.
Its Charatcerization Platform and Interdisplinary Institute from Fundamental research department, both in Grenoble are funding QEM.