MS47-2-2 CRISTAL-ITE: a single-crystal X-ray diffractometer scale model for scientific dissemination #MS47-2-2

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Abstract
In a recent article entitled 'Teaching and Education highlighted' the authors report: 'In editing Teaching and Education articles… it is usually not the novelty of the scientific content that is important but the novelty in the way in which established crystallographic ideas and concepts are presented, especially with reference to the expected level of the target audience'[1]. Indeed development of modern digital tools in the 21st century is an undeniable asset for teaching crystallography toward students and the wider public[2,3] but encounters between people, physical links and thus 'teaching by the hands' remain as important as ever. Moreover, our own experience in disseminating knowledge demonstrates that the wider public and school/college students are always very enthusiastic about the idea of meeting laboratory staff, researchers and engineers, to discuss their research or more general scientific subjects. With this in mind we thought it would be interesting to 'take out' of the laboratory some 'mysterious' and complex equipment, bringing it to the attention of people who don't usually have the opportunity to see it - or even know that it exists - and use it as a basis for explaining various phenomena and concepts of crystallography in a playful way. The various technologies used in the design and operation of a four-circle single crystal X-ray diffractometer make it a very visual apparatus, likely to attract the eye and allowing to explain many physical phenomena or mathematical concepts - electromagnetic radiation, diffraction, interferences, Fourier transform - and to talk about crystallography in the broadest sense - state of matter, crystals, chemistry, biology etc... -. Tabletop diffractometers exist but are still very heavy and out of financial reach for schools or scientific associations for educational projects. We have therefore chosen to design and create a scale model of this type of diffractometer with the most common characteristics with the laboratory equipment, but safe, cheap and easily transportable in classrooms or public space[4]. Our poster will describe the main technical specifications of the apparatus that will also be present on site for demonstrations in action.

References
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