

Sowing crystals: crystal growth activities in Bariloche, Argentina

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To celebrate the International Year of Crystallography 2014, the Argentinian Crystallography Association (AACr) [1] launched the Crystal Growing Competition. It is an annual contest, which has been held uninterruptedly since 2014. This activity is accompanied with courses in different cities of Argentina. In particular in our city, San Carlos de Bariloche, in the Argentinean Patagonia, the courses are organized by the Instituto Balseiro (IB) and the Centro Atómico Bariloche (CAB). We have organized courses regarding the dissemination of crystallographic science in all educational levels. The course is aimed to introduce crystallography and give guidelines on crystal growth techniques to elementary and high schools teachers. With the learned topics and the pedagogical material given in the course the teachers can elaborate laboratory projects that include crystallography principles according to their own students' level and to encourage the participation in the national and international crystal growing competition.

Succinctly, the topics covered by our course are: a) Introduction to crystallography, b) Atomic structure, chemical bonds, c) Types of crystalline solids: metallic, ionic and covalent, d) Crystalline systems, Bravais lattices, e) Introduction to structure determination using X-ray diffraction and f) Crystal growing in the school, with practices in laboratory. In the experimental practices the teachers learn about solubility, growth of crystal seeds, and formation of single crystal and polycrystalline samples and finally, they grow their own crystals.

More than a hundred of teachers from Bariloche and the influence zone (Province of Río Negro and Neuquén) have attended the classes and laboratory practices since 2014. This participation was reflected in an increment of hands-on crystal growth activities in the schools and the participation of the students in growing competitions.

Finally, the IB and CAB organize every year "Crystal Growth" workshops destined to elementary and high schools students. In these workshops students learn about crystal growth with practical demonstrations. Workshops are given by CAB researchers and by the teachers who participated in previous courses as part of their final evaluation and as an additional training in laboratory with students. Furthermore, special outreach printed pieces are designed and delivered to students and teachers.

In addition at the course and workshop, activities on popularization on crystal growth are made in the "Muestra CAB-IB", an annual fair organized with the aim of showing the work performed in the CAB and IB to the general public [2]. There experiments, interactive shows and professional lectures are offered for a week by researchers CAB and IB. It is open to public and targeted in particular to students from 5th at primary school to non-university tertiary.

[1] <http://www.cristalografia.com.ar>

[2] <http://www.cab.cnea.gov.ar/index.php/centro-atomico-bariloche/47-espanol/acordion/136-divulgacion-cientifica-tecnologica-2>



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