

## Poster

**CNCC - Concurso Nacional de Crecimiento de Cristales de Uruguay: 10 years of a successful crystal growing competition for schoolchildren and more.**

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During the International Year of Crystallography, in 2014, Uruguay held the first National Crystal Growing Competition (CNCC, for Concurso Nacional de Crecimiento de Cristales). It was organized by an interdisciplinary team of professors, students and outreach officers grouped at Facultad de Química and Centro Universitario Regional Este of Universidad de la República. The main goal, aligned with the ones set by the IUCr, was to reach out to the community introducing them to the exciting world of crystals and crystallography by involving young people in growing a single crystal. The competition involved workshops dictated by the team, to enable future tutors of the schoolchildren gain specific knowledge in crystal growth, keeping detailed records of experiments and presentation of results. In order to allow participants to get involved in the Worldwide Crystal Growing Competition organized by the IUCr, part of the points awarded to the participants were based on 3 minutes videos that were judged together with the crystal. Grown crystals were judged by their weight and quality of the crystal grown and additional points were awarded for the records of the experiment in terms of creativity and scientific rigor.

Throughout the first three editions (2014-2017) more than 800 people, ages 7 to 30, from around 100 schools throughout the country participated in the CNCC. It is worth mentioning that participation was not limited to kids, anyone involved with the formal education system, even if receiving adult education in any context (including persons deprived of liberty) could participate [1]. Some participants also won prizes in the Worldwide Crystal Growing Competition in 2014, 2015 and 2017 [2].

The competition grew over the years, especially in the period 2014-2019 where a new category of competition was introduced. The creation of "Crystal gardens" allowed kindergarten to 6<sup>th</sup> grade primary school children to participate in large classroom groups with their teachers, instead of the small groups recommended for single crystal work (an activity much harder to organize in a 20-30 children classroom without proper laboratory material and enough teachers). Over 3000 kids and Teachers participated during that period, coming from the 19 departments of the country with creations that overwhelmed the organizers and fellow competitors.

The outbreak of covid-19 pandemic in Uruguay (March/2020) caught us in the initial steps of organizing the 7<sup>th</sup> CNCC, and the group managed to run a Crystal Growing Competition at Home that got more than 50 schoolchildren involved, growing crystals of sugar, salt and copper sulphate, with the help of their parents or close relatives during lockdown [3].

In 2021 an abbreviated competition was organized, running from August to October, after nationwide vaccination allowed to restart in-person school activities. The category of crystal garden was extended to secondary school kids to promote participation. Finally, 2022 brought great happiness, with a renewed CNCC (9<sup>th</sup> edition) including the organization of workshops for tutors again, gaining participants by the hundredths. The continued activity of CNCC -even through the pandemic period- was recognized by the producers of a science dissemination TV Program of Uruguay -Sobre Ciencia- and the results of CNCC-9 were announced on public television on November 2<sup>nd</sup> 2022 [4].

Last year (2023) the 10<sup>th</sup> CNCC took place. More than 100 groups registered in the 3 categories (Secondary School single crystals, gardens and Primary School gardens) with more than 500 school-children (kindergarten to 6<sup>th</sup> grade) and 400 secondary-school students (12-17 years old) participating with their teachers. More than 50 groups submitted their results for evaluation. In this presentation we will show how the CNCC is run every year, what resources are used and what is the impact of the competition in students, teachers and us. Some results on the current 11<sup>th</sup> CNCC in progress now will also be shown.

Information about the competition, historical records, dissemination material and news can be found at our web page and social networks: <http://www.cncc.fq.edu.uy/>, X: @cnccfqy, Instagram: @cnccfqy, Facebook: <https://www.facebook.com/cnccfqy/>.

[1] Alvarez et al. (2017); "Uruguay's National Crystal Growing Competition", Blucher Material Science Proceedings 23a Reunião da Associação Brasileira de Cristalografia 2(2), 30-33. DOI: 10.5151/23abcr-17.

[2] Worldwide Crystal Growing Competition of IUCr. <https://www.iycr2014.org/participate/competition-winners/2017-winners>.

[3] Aguiar et al. (2020); "A crystal growing competition at home: outreach activities during lockdown" IUCr Newsletter Vol 28, Number 3.

[4] <https://sobreciencia.uy/ciencia-en-la-escuela-el-liceo-e-incluso-en-la-carcel/> - <https://youtu.be/wYMCdc7HgYU>.

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