



ACADEMIC TRAINING ACTIVITIES ORGANISED BY THE CONSORTIUM FOR THE CONSTRUCTION, EQUIPMENT AND EXPLOITATION OF THE SYNCHROTRON LIGHT LABORATORY

This document describes the academic activities organised by the Consortium for the Construction, Equipment and Exploitation of the Synchrotron Light Laboratory (hereinafter, CELLS), which manages the ALBA synchrotron light source. The purpose of this document is to provide the information required to prove CELLS' full suitability to use educational software licenses in a wide range of areas.

The main activity of the CELLS public consortium is currently in fact the operation of the ALBA synchrotron light source, as well as its continuous development and improvement. ALBA is a third-generation synchrotron light source that offers the academic-scientific and industrial communities a unique tool to study the microscopic structure of matter in many fields of application, with a notoriously multidisciplinary approach. This notes, in the first place, the great importance that all of ALBA activities have for academia, as the majority of experiments with synchrotron light carried out during the nearly 6000 hours of operation per year (exceptionally 4800 hours in 2020 due to pandemic restrictions) involve groups from public research centres and universities and constitute an essential contribution to their research and academic training programmes, often enriched with stays from external trainee researchers (both pre- and post-doctoral researchers).

Also to be highlighted is the fact that activities at CELLS are an excellent opportunity to undertake direct academic training activities, apart from generally contributing to the community of users as mentioned above. For this reason, CELLS has started the following academic training programmes, which involve a systematic and intensive use of several software tools:

- CELLS training programme for post-doctoral researchers. CELLS has a programme of post-doctoral training stays currently in place whereby at least 16 positions in the different areas of activity within the consortium. Each of these postdoctoral researchers - currently 5 are hired - completes a stay of at least three years, extendable to a maximum of five.
- CELLS training programme for pre-doctoral researchers. CELLS has its own programme for pre-doctoral students in cooperation with several external institutions to make the best of the excellent academic training possibilities provided by its activities. There are currently 6 PhD theses being prepared at CELLS.
- CELLS training programme for graduate and undergraduate students. Since 2014, CELLS has run a training practice programme for graduate and undergraduate students. Through public invitations, students of any university are invited to send their requests and if applicable selected to carry out the projects within CELLS' scientific and technological activities which best adapt to their curricular requirements (business practice, final degree project, master project, etc.). Please note that these training stays do not necessarily focus on genuinely scientific areas, but often relate to technical areas (mechanical engineering, electronics, control, etc.), for which CELLS's activity provides excellent opportunities to complement these students' training, as proven by the very good academic results obtained. 14 stays have been approved within this programme for 2021-22, ranging from a few months to the full academic year.
- Dual professional training programme at CELLS. Once more since 2014 the CELLS has undertaken with the Catalan Education Department a broad dual professional training programme. This educational specialty, which the Catalan Government is promoting as a key

tool to improve the training quality and employability of vocational training students across its entire network of centres, is based on the concept of shared training in coordination between the educational establishment and a collaborating company (in this case, the CELLS). Thus, the CELLS is currently hosting 12 students from different professional training centres in the vicinity, based on stable agreements that allow us to have one student per academic year (for a period of no less than 10 months) from each collaborating educational establishment.

- Training sessions for secondary school (14-17 years old), through virtual or face-to-face visits at the ALBA Synchrotron, complemented with support material to be developed in the classroom. Since 2014, CELLS receives annually 2500 students (with the exception of 2020 when pandemic restrictions forced to cancel scheduled visits). In 2021, CELLS is reintroducing virtual visits to reach again 2.500 students.
- *Misión ALBA* - <https://www.misionalba.es/>. With the aim of promoting scientific careers among primary school children and reinforcing CELLS's commitment towards outreach, this educational project is being offered to schools all around Spain every academic year since 2018, counting with a yearly participation of 300 classrooms approximately (7500 students from 10-12 years old).
- Finally, the CELLS collaborates in providing teaching within selected academic programmes of neighbouring universities. Since academic year 2014/15, the Autonomous University of Barcelona has been teaching the Physics Degree in Accelerators Physics (<https://ddd.uab.cat/record/230291>), which is a novelty among Spanish universities. Other activities focus mainly on master programmes and are updated every year, but always enjoy a high degree of involvement, which allows the ALBA project to contribute to their academic excellence. In academic year 2021/22 the CELLS continues participating in two master programmes in cooperation with the Polytechnical University of Catalonia. As for the Autonomous University of Barcelona, our close cooperation and geographical proximity has led the CELLS to be part of the UAB Esfera group.

It is for these reasons that we deem CELLS fit to use academic software licences to attend the numerous training activities described in this document.

Cerdanyola del Vallès, December 2021

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