

Ctra. BP-1413, Km. 3,3 08290 Cerdanyola del Vallès Barcelona - Spain

## Título puesto: Measurement of pulsed magnets with vibrating wire technique. Curso: 2025-26 División: Aceleradores

## Descripción del proyecto:

Pulsed magnets are a key component for electrons injection in a storage ring, A new pulsed magnet part of the injection system of the ALBA2 upgrade is under development at the ALBA-CELLS synchrotron. The field produced by this magnet is designed in such a way to allow injection of new electrons in the ring without affecting the ones already circulating. The resulting strong gradient in the magnetic field and the required tight tolerances make it hard to characterize such magnet with the standard techniques.

To characterize and calibrate the new magnets a first prototype of a measurement test bench based on a modified version of the vibrating wire technique has been assembled: A metallic wire is stretched under tension through the magnet's bore and the magnetic field is characterized by observing the wire vibration resulting from the interaction of the wire with the magnetic field. This technique allows for a full spatial mapping of the field, plus it allows to characterize time dependent effects such as the on induced by eddy currents.

The project includes a first phase where the candidate will get familiar with the theory of the vibrating wire technique and a second phase where experimental testing aiming at the optimization of the setup developed at ALBA will take place.





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## Perfil del estudiante:

Physics or engineering

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