

## Call for contribution of expertise

CERN invites collaborating institutes and universities to contribute the expertise of their qualified employees to the activity described below.

*Start date:* ASAP

*Duration:* Two years, possible extension to a maximum of up to three years.

*Project/Activity:* Mechanical engineer (Simulations) for the Crab cavities project (HL-LHC project)

The Mechanical and Materials Engineering Group (MME) of the Engineering department (EN) is in charge of engineering support combining mechanical design, production facilities and material sciences, for the maintenance of CERN facilities and the manufacturing of prototypes as required for CERN projects.

The Crab cavities are superconducting radio frequency cavities that will be used, as part of the future High-Luminosity LHC upgrade, to provide a transverse deflection to particle bunches.

Within the Engineering Design and Measurements section of EN-MME group and in the frame of the Crab cavities mechanical engineering related activities, the expert will carry out three types of actions:

- Use advanced analytical and numerical methods (Finite Element Method, Mutiphysics analyses) to perform calculations in several domains such as: structural mechanics, thermo-mechanical calculations, modal analyses;
- Be in charge of the documentation management of all the data produced by the group;
- Support the coordination of the activities in the group including: mechanical design validation, prototyping, set-up of production facilities, manufacturing process, quality assurance implementation and follow-up.

*Profile:* Mechanical engineering diploma or equivalent.

*Specific details:* Experience in the design and advanced mechanical analyses using analytical and numerical methods. Ideally, some knowledge of manufacturing technologies, material properties and use of non-conventional materials, analysis and testing methods, pressure vessels standards, cryogenics, ultra-high vacuum technology. Excellent organization and communication skills

*Status at CERN:* Associated Member of the Personnel (Project Associate).

Conditions in accordance with CERN's Staff Rules and Regulations and Administrative Circular No. 11. Subsistence allowance is payable by CERN to cover the additional cost arising from the individual's (and, as applicable, their family's) stay in the local area while performing activities at CERN.

*Option:* Collaborating institutes and universities can propose to support the activity of the qualified employees participating in this "Call for contribution of expertise" with students or other employees. Their status and Subsistence allowance when applicable will be adapted to their relation with their institutions

*Contact person:* [Isabel.Bejaralonso@cern.ch](mailto:Isabel.Bejaralonso@cern.ch)

*Reference:* 2019\_Q4\_34\_Simulations\_Crabs