

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: January 2020

Duration: One year, possible extension to a maximum of up to two years.

Project/Activity: Design upgrade of a high precision current source for instrument calibration

Detailed description of Activity:

The CERN current calibrator is a high precision current source based used for the calibration of measurement devices for CERN power converters. This project proposes to upgrade the existing design in order to enhance its performance. This includes:

- Completing the existing simulation model for both the electronic and magnetic components
- Propose and implement improvement to the existing circuits including replacement of obsolete components but also schematic and layout modifications if deemed necessary to improve performance
- Propose and implement improvements to the cabling and inter circuit connection for better EMC
- Propose and implement new layouts for the PCBs
- Propose and implement new thermal and mechanical configuration for the CDC aiming at ΔT reduction on the most critical circuits
- Build and validate a prototype

Profile: Master's degree in Electronics/Electrical engineering

Specific details:

Very good knowledge in analogue electronics

Good knowledge in measurement electronics and instrumentation

Experience with electronics simulation using Spice (in particular LTSpice)

Knowledge of magnetic materials and transformer theory

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

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