

# Summary of proposal

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My research program will be focused on the laser calibration system for the Muon g-2 experiment at Fermilab and on the analysis of the anomalous precession frequency.

After many years of preparation, the Muon g-2 experiment is approaching its data taking. It is expected that in 2018 the detector and the ring will be fully commissioned and a statistics exceeding the one in the previous BNL experiment will be collected. Essential to reach the physics goal is the high precision laser calibration system, for which I gave a key contribution by leading the Italian efforts on it. I'm now asking a 12 months fellowship (with 7 months at Fermilab) to:

- 1) Ensure the correct operation and the critical performances of the laser calibration system and acting as on-call expert during data taking; implement and test with real data the gain corrections in the g-2 software; optimize the different (in-fill, out-of-fill and double pulse) calibration procedures;
- 2) Contribute to the anomalous precession frequency ( $\omega_a$ ) analysis, implementing the calibration software in the data reconstruction and analysis framework; following the software production, releases and distributions; acting as contact person for the Italian analysis group.

Receiving the fellowship would be essential for accomplishing both tasks.