Marco Incagli – Proposal summary

Many hints exist that point to the fact that the Standard Model of Particle Physics is not the ultimate theory. In the search for new physics beyond the Standard Model, precision experiments at the High Intensity Frontier play a crucial and very specific role, in what they probe regions of the phase space which cannot be reached by experiments at the Energy Frontier. The g-2 experiment at Fermilab is surely one of the key experiments at the Intensity Frontier. The experiment aims to reach a precision at the 0.1 ppm level in the measuremente of the muon anomaly, which requires an extremely strict control of all possible systematic effects.

With my presence at Fermilab, I will be able to contribute to the experiment by

- keeping a leading role in the Laser Calibration System, which allows to mantain a stable calorimeter response as a function of time and beam intensity (note that Gain Instabilities have been the single largest contribution to the global systematic error of the previous BNL experiment);
- coordinating one of the groups which are performing the analysis of the Spin Precession Frequency;
- contributing to data taking as Run Coordinator, first, and as Operation Manager, in a second phase of Run 3 (Oct 2019 - Jul 2020).