Contribution ID: **13**   Type: **Oral**

Combined explanations of (g-2)_mu, (g-2)_e and implications for a large muon EDM

Wednesday 23 October 2019 17:10 (20 minutes)

We consider possible beyond-the-Standard-Model (BSM) effects that can accommodate both the long-standing tension in the anomalous magnetic moment of the muon, $a\mu=(g-2)\mu/2$, as well as the emerging 2.5σ deviation in its electron counterpart, $ae=(g-2)e/2$. After performing an EFT analysis, we consider BSM physics realized above the electroweak scale and find that a simultaneous explanation becomes possible in models with chiral enhancement. However, this requires a decoupling of the muon and electron BSM sectors to avoid the strong constraints from $\mu \rightarrow e\gamma$. In particular, this decoupling implies that there is no reason to expect the muon electric dipole moment (EDM) $d\mu$ to be correlated with the electron EDM de, avoiding the very stringent limits for the latter. While some of the parameter space for $d\mu$ favored by $a\mu$ could be tested at the $(g-2)\mu$ experiments at Fermilab and J-PARC, a dedicated muon EDM experiment at PSI would be able to probe most of this region.

Author: CRIVELLIN, Andreas (PSI&UZH)

Presenter: CRIVELLIN, Andreas (PSI&UZH)

Session Classification: Session