New Physics or Hadronic Uncertainty? A New Look at Older Problems

The strong interaction plays an important part in searching for new physics, both directly and indirectly. Understanding the possible non perturbative effects is indispensable if one would like to interpret correctly the experimental data. I will present two cases of indirect searches, thought to be well understood, where new insights about the hadronic uncertainty can change the way we understand them and their potential to show effects of new physics. These are:

1. The recent extraction of charge radius of the proton from muonic hydrogen, which is 5 sigma away from the PDG value.

2. The non perturbative error for radiative B decays.