Lattice Results for New Hadronic States
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Recent results related to the new hadronic states from ab-initio lattice QCD calculations will be presented. I will focus on the charmonium and charmonium-like states as well as the interesting positive parity $D_s$ and $B_s$ mesons. Charmonia below open charm threshold are rather well understood, and their theoretical treatment is precise and reliable. I will consider charmonium(like) states near or above open charm threshold. These are very interesting, not only because of the experimental discoveries during the past decade, but also due to the theoretical challenges in their understanding. I will present one of the first studies that take into account the effects of thresholds for near-threshold states, and also the effect of strong decays for resonances above thresholds. New results on the exotic states $X(3872)$ and $Z_c^+$, as well as on the more conventional charmonium resonances will be presented. The meson spectrum contains a few interesting states that are located slightly below strong decay threshold. Observed positive parity $D_s$ mesons represent one such example and I will discuss the first simulation that takes into account the effect of the nearby $D^{(*)}K$ threshold. The positive parity partners $B_s$ are still missing experimentally, and mass prediction for those will be presented.