Response to Reviewer 1 Comments

**Point 1:** It is stated by the author that

“One of the puzzles of hadron physics is the origin of the hadron masses. The Standard Model and, in particular, QCD operate only with fundamental particles (quarks, leptons, neutrinos), gauge bosons and the Higgs. It is not yet clear how to explain the appearance of the multitude of observed hadrons and elucidate the generation of their masses. Physicists have proposed a number of models that advocate different mechanism of the origin of mass from the most fundamental laws of physics. The calculation of the hadron mass spectrum in a quality comparable to the precision of experimental data remains actual.”

I do not fully agree with the author. Dynamical chiral symmetry breaking is the widely accepted mechanism responsible for the mass generation, see, for instance, arXiv:1811.01003v2, for a recent calculation of the dynamical quark mass function, which establishes the connection between the current quark masses (from the Higgs mechanism) and the constituent masses of quarks inside hadrons.

**Response 1:**

> Particularly, the dynamical chiral symmetry breaking is one of the widely accepted mechanisms explaining the connection between the ‘current’ quark masses and the ‘constituent’ masses of quarks inside hadrons (see, e.g. [17]). Nevertheless, the calculation of the hadron mass spectrum in a quality comparable to the precision of experimental data remains actual.


**Point 2:** A question related to the above point: No results for the pion and kaon masses are presented. How could such a model ever describe the pion correctly, for which the implementation of dynamical chiral symmetry breaking is indispensable?

**Response 2:**

> It is known that light pseudoscalar mesons ($\pi(140)$ and $K(494)$) are much lighter than their vector counterparts ($\rho(770)$ and $K^*(892)$). Any correct description of these light pseudoscalar mesons requires an indispensable implementation of dynamical chiral symmetry breaking in the working theoretical model. Therefore, no results for the pion and kaon masses are represented in TAB. I.

**Point 3:** I assume that the author means with analytic confinement the absence of real mass poles in the gluon and quark propagators. For the glueball calculation the constituent gluon mass is assumed to be zero. Is a zero gluon mass not in contraction with analytic confinement, in the sense that there is a (real) gluon mass pole at $p^2=0$? In any case, I am not really too worried about real mass poles of constituent quarks or gluons (see, for instance, arXiv:hep-ph/9911319v1 or arXiv:1707.09303 where quarks can be on-shell and are still confined in meson). I am more worried that “analytical” confinement is not reconcilable with a zero gluon mass.
Point 4: It is stated that the model gives a solution for mesons that is equivalent to the solution from the Bethe-Salpeter equation in ladder truncation. If this is the case, to which quark-antiquark interaction kernel in the BSE would the model then correspond to?

Response 4: