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Deconfinement temperature in AdS/QCD from the spectrum of scalar glueballs

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We scrutinize various holographic estimations of the deconfinement temperature within the bottom-up AdS/QCD models. A special emphasis is put on the recent idea of isospectral potentials in the holographic approach. It is demonstrated that different models from an isospectral family (i.e., the models leading to identical predictions for the spectrum of hadrons with fixed quantum numbers) result in different predictions for the deconfinement temperature. This difference is found to be quite small in the scalar glueball channel but very large in the vector meson channel which is often used for fixing parameters of holographic models. The observed stability in the former case clearly favors the choice of the glueball channel for thermodynamic predictions in AdS/QCD models, with the scalar glueball trajectory being taken from lattice simulations and used as a basic input in improved versions of the Soft Wall holographic model.

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