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Thomas-Fermi quark model for mesons

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The first results of a new application of the Thomas-Fermi statistical quark model to mesonic states will be presented. Interesting aspects of the theory will be discussed, distinguishing such states from baryonic matter. A major motivation of this study is the tetraquark states discovered at the LHC and the possibility that stable multi-quark families of such states exist. Similar to the previous baryonic study, we use a two-inequivalent wavefunction approach to investigate aspects of many-meson matter. We think of our model as a tool for quickly assessing the characteristics of new, possibly bound, particle states of higher quark number content, which cannot yet be examined by lattice methods.

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