

Abstract Submitted  
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**Ground State Masses of Charmonium Hybrids from QCD Sum-Rules**<sup>1</sup> DEREK HARNETT, University of the Fraser Valley, TOM STEELE, University of Saskatchewan, JASON HO, BRENDAN BULTHUIS, TIMOTHY RICHARDS, RYAN BERG, University of the Fraser Valley, ROBIN KLEIV, WEI CHEN, University of Saskatchewan, SHI-LIN ZHU, State Key Laboratory of Nuclear Physics and Technology, Peking University — Over the past decade or so, a number of new, charmonium-like resonances have been observed. However, few of these particles, collectively dubbed the XYZ resonances, can be neatly accommodated by a conventional charmonium meson interpretation as there are major discrepancies between theory and experiment with regards to masses, resonance widths, decay modes, and branching ratios. Quite naturally, this has fuelled a great deal of speculation that at least some of the newly discovered particles lie outside of the constituent quark model. Hybrids, hadrons with explicit quark and gluon degrees of freedom, represent one such possibility. In an effort to identify hybrid content within the XYZ resonances, we have performed a comprehensive QCD sum-rules analysis of ground state charmonium hybrid masses for a wide variety of quantum numbers. We present our findings and comment on the phenomenological implications.

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