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Covalent hadronic molecules from QCD sum rules

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After examining the Feynman diagrams corresponding to some candidates of hadronic molecular states, we propose a possible binding mechanism induced by shared light quarks. This mechanism is similar to the covalent bond in chemical molecules induced by shared electrons. We use the method of QCD sum rules to calculate its corresponding light-quark-exchange diagrams, and the obtained results indicate a model-independent hypothesis: the light-quark-exchange interaction is attractive when the shared light quarks are totally antisymmetric so that obey the Pauli principle.

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