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The Quark-Diquark Structure of Baryons

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Baryons can be described within several theoretical frameworks. Among them, the constituent approach is widely used. In this context, we aim to evaluate the accuracy of an approached model of baryons: the quark-diquark approximation. It consists in separating the three-body system into two subsequent two-body ones: a pair of two quarks (the diquark) and a subsystem consisting of the diquark and the remaining quark. This approximation is widely employed, but its accuracy is rarely evaluated. The goal of this work is to perform this evaluation by comparison with a three-body model. The baryon masses and characteristic distances are computed and analysed within both approaches. Additionally, an original procedure to establish the quark-diquark potential will be presented with the aim to increase the precision of this approximation.

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