

Possibility of existence of new dibaryons below pion production threshold

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Search for new dibaryons was carried out in [1, 2]. It was found that the data of two independent experiments [3, 4] might give an affirmative answer to this question. Furthermore, the data from [1] and [2] are in a so striking agreement that their incidental coincidence should be considered as a marvel. On this basis, it is reasonable to assume existence in an excited neutron-proton system a large group of narrow dibaryon resonances located below the pion production threshold. In this report, two possible theoretical justifications for the existence of such dibaryons are proposed. One of them is based on the Brodsky-de Teramond explanation of the color transparency violation. The second ground appeals to a chance of the existence inside the deuteron of a strongly coupled system of two Δ -resonances, which is excited in deuteron–deuteron collisions. It is shown that verification of the both hypotheses is feasible at the future NICA SPD facility.

REFERENCES

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