

## Low-Lying Pentaquark Baryons in Pseudoscalar-Vector SU(3) Skyrme Model

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Abstract: For the first time the low-lying  $J=1/2$  pentaquark states are investigated in the pseudoscalar-vector Skyrme model. Once the conventional baryon properties are fit, other states are predicted without any more adjustable parameters. Furthermore, both symmetry-breaking and decay operators are treated in full. In particular, we focus on the calculations of mass and decay width, and compare them with the experimental data available and relevant theoretical results obtained in other pictures. We recognize that the higher-order contributions, such as the  $35$  and/or  $\bar{35}$  representation admixtures, are not negligible. Our analysis provides some valuable clues to the physical mechanisms, and the oncoming experimental search and/or confirmation could provide a sharp test of our proposal.

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Key words: nonstandard multiquark, Skyrmions, hadron mass calculations, hadronic decays

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