Evidence for a narrow baryon state with $|S| = 1$ at the HERMES experiment

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A narrow baryon state has been found in the channel $pK_s^0 \to p\pi^+\pi^-$ of quasi-real photoproduction on a deuterium target at the HERMES experiment. Its mass is $1528 \pm 2.6 \pm 2.1$ MeV and its width is somewhat larger than the experimental resolution of 4.3-6.2 MeV. This state may be interpreted as the predicted S=+1 exotic Θ^+ pentaquark baryon. No signal for a hypothetical Θ^{++} baryon was observed, indicating that the Θ^+ is an isoscalar particle.

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