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Spin-parity assignments of excited Ω_b^- -baryons in the Quark-Diquark Model

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Recently the LHCb Collaboration reported about the observation of four excited states $\Omega_b(6316)$, $\Omega_b(6330)$, $\Omega_b(6340)$, and $\Omega_b(6350)$ in the $\Xi_b^0 K^-$ invariant mass spectrum. Possible spin-parity assignments of these resonances in the Quark-Diquark Model as P -wave baryons is discussed and a comparison with theoretical predictions based on the heavy-quark symmetry is given. Parameters of the effective Hamiltonian used for mass estimations are determined from the observed spectrum of Ω_b^- -baryons.

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