

SPIN AND QUARKS

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Reference: Griffiths, David J. (2005), Introduction to Quantum Mechanics, 2nd Edition; Pearson Education - Problem 4.35.

The sub-nuclear particle the quark has spin $1/2$.

Baryons, such as protons and neutrons, are composed of 3 quarks. In a 3-quark system, two of the quarks can give a net spin of 0 or 1. Combining this system with the third quark allows spins of $\frac{3}{2}$ or $\frac{1}{2}$, both of which are observed in real-life baryons.

Mesons, such as the pion, are composed of 2 quarks. In a 2-quark system, we can have spins of 0 or 1. Again, both types are observed in nature.