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$6j$ -symbols and the tetrahedron

A classical $6j$ -symbol is a real number associated to a labelling of the six edges of a tetrahedron by natural numbers (or equivalently by irreducible representations of $SU(2)$). The tetrahedral picture is traditionally used merely to indicate the symmetry of the $6j$ -symbol, but it turns out that there is a striking formula expressing the large-label asymptotics of the symbol in terms of the geometry of a tetrahedron in Euclidean or Minkowskian 3-space.

I will try to explain how $6j$ -symbols arise in physics and algebra, why they have such a geometric interpretation, and what they are good for in topology.