

## **Proton Spin in 3 Dimensions**

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A proton & neutrons (the nucleons) are fermions of spin "1/2". They are made of quarks and gluons and are the fundamental building blocks of the visible universe. They have been studied, and used effectively as tools in medicine to to high energy physics. However, we despite thirty years of experimental and theoretical investigations, we still can not explain the spin 1/2 of the nucleons in terms of their constituents. How can we say we understand QCD if we can not explain its "spin", a basic property of the proton? After a brief review of the status of our understanding of the proton spin and state-of-the-art experimental investigations, I will present how future experimental facility, the Electron Ion Collider, that will close the book on this long standing problem