

Contribution ID: 153

Type: **Plenary Sessions** (for INVITED PLENARY TALKS only!)

## Lattice QCD calculations of the quark and gluon contributions to the proton spin

*Friday, 14 September 2018 11:30 (40 minutes)*

The remarkable result, from the measurements of spin asymmetry in polarized deep inelastic scattering by the EMC collaboration, that the sum of the spins of the quarks contributes less than half of the total spin of the proton lay down the challenge to explain this “proton spin crisis” from QCD. I will show that calculations of the required matrix elements using Lattice QCD are now in a position to provide first principle results with all systematics under control and the steady reduction in the error budget. The most well determined of the contributions is of the quark’s intrinsic spin. Existing lattice results will be reviewed and compared with current phenomenological/experimental estimates.

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**Session Classification:** Plenary

**Track Classification:** Nucleon Helicity Structure