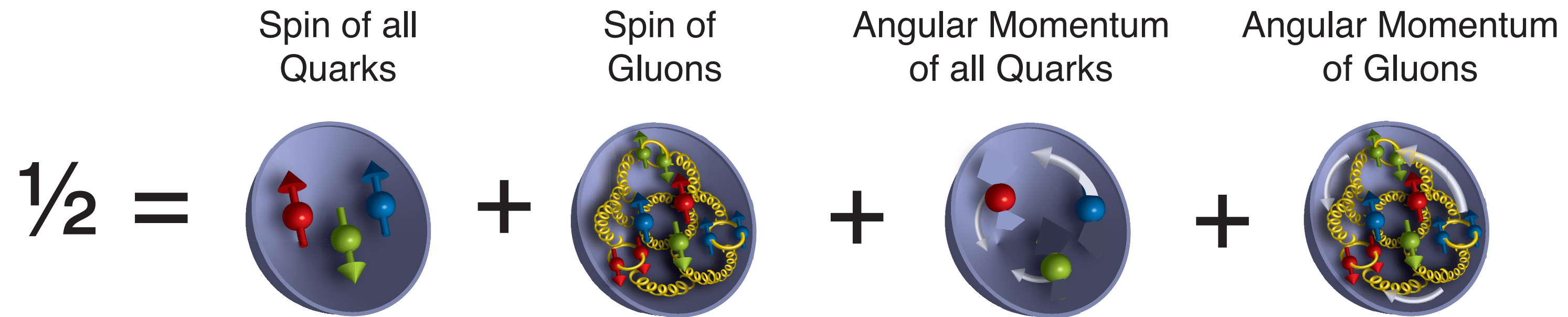
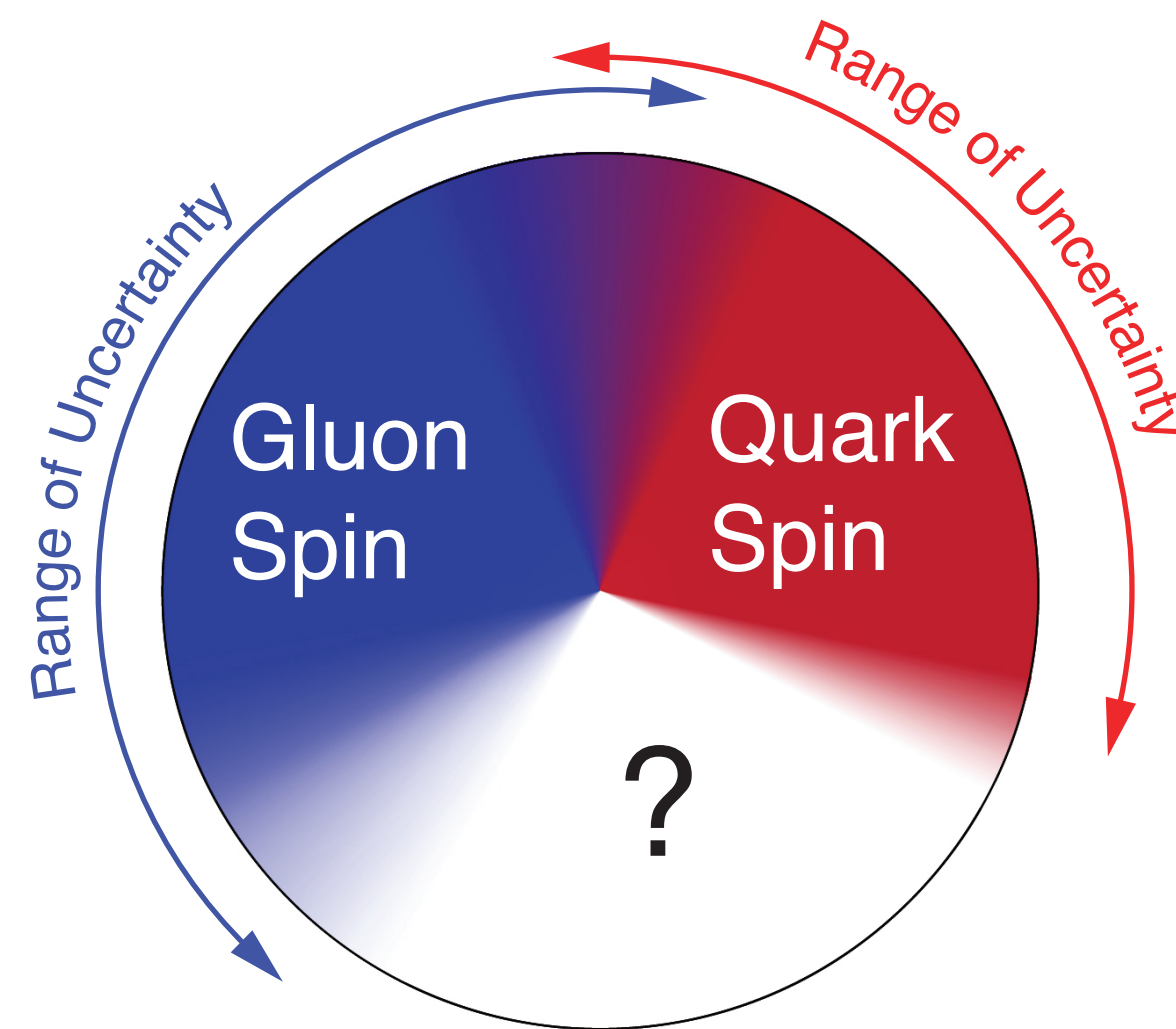


The Spin of the Proton



Approximate Current Contributions to the Proton Spin



The simple fact that the proton carries spin-- $1/2$ measured in units of Planck's famous constant- is exploited daily in thousands of MRI images worldwide. Because the proton is a composite system, its spin is generated from its quark and gluon constituents. Experiments at CERN showed that no more than 30% of the spin can come from spins of the quarks and anti-quarks alone. So how much of the spin comes from the gluons? Recent experiments at the Relativistic Heavy Ion Collider (RHIC) at Brookhaven National Lab indicate that the gluon spin may contribute some 20%, albeit still with relatively large uncertainties. That still leaves us with only 50% of the total. Orbital angular momentum of quarks and/or gluons must come to the rescue. Experiments at RHIC, at Jefferson Lab, the COMPASS experiment at CERN and at a future Electron-Ion Collider can provide further evidence of what makes up the proton spin. Is it more gluon spin? Is it a mix of the orbital angular momenta, anti-quarks and gluons? The quest to understand how a simple number arises leads us to a rich if puzzling complexity.