

## Gluonic Origin and Glueball Nature of Pomeron

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**Abstract:** The Pomeron-nucleon coupling vertex is theoretically derived from the fundamental theory of strong interaction QCD. The empirical vertex  $\beta\gamma^m F_1(t)$  used commonly in diffractive processes with a coupling strength  $\beta=6.0 \text{ GeV}^{-1}$  is initially obtained from QCD theoretically. Our study not only reproduces the Pomeron-nucleon coupling from QCD but also clearly shows the gluonic origin and glueball nature of Pomeron, which is a longstanding puzzle. From this investigation, we claim that Pomeron can be regarded as a Reggeized tensor glueball  $\xi(2230)$  with quantum numbers of  $1^{GJPC}=0^{+2^{++}}$ . Since the tensor glueball  $\xi(2230)$  lies on the Pomeron trajectory  $\alpha_p(t=M_\xi^2)=2$ , the longstanding puzzle that no physical particle lies on the Pomeron trajectory,  $\alpha_p(t)=1.08+0.20 \text{ GeV}^{-2}\cdot t$ , seems to be solved.

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