

Abstract
References

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**Beyond the colour-singlet model for inelastic J/ψ photoproduction**Hafsa Khan^a, Pervez Hoodbhoy^{b, *}^a Department of Physics, Quaid-e-Azam University, Islamabad, Pakistan^b Center for Theoretical Physics, Massachusetts Institute of Technology, Cambridge, MA 02139, USA

Abstract

Bound-state corrections to J/ψ production from almost real photons are calculated in the colour-singlet model. A systematic, gauge-invariant, theory of hard quarkonium processes is used upto $\mathcal{O}(v^2)$ where v is the relative velocity of the quarks. The internal structure of the meson is characterised by two parameters, ϵ_B/M and $\nabla^2\phi(0)/M^2\phi(0)$, in addition to the usual wavefunction at the origin $\psi(0)$. These parameters are constrained to be consistent with measured leptonic decay of the J/ψ and hadronic and radiative decays of η_c . The calculated corrections to the colour-singlet model, which include radiative effects, improve agreement with the experimental data.

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