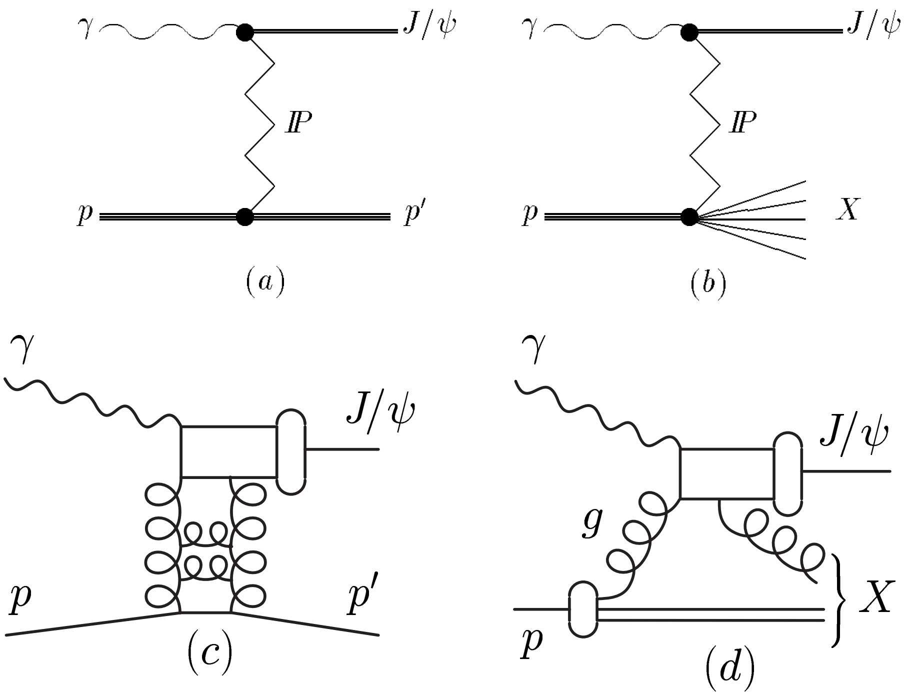
J/ψ Photoproduction Mechanisms

Probing strong interaction physics in transition region of perturbative QCD regime (i.e. energy scale set by mass of heavy quarks, given α_s small enough) and non-perturbative phenomenological models (long range or soft interactions are considerable; e.g. VDM).



Classification of Production Processes :

☐ a)+c) : elastic b)+d) inelastic processes ;

$\Longrightarrow$ experimental separation by inelasticity $z(J/\psi) \approx E_{J/\psi}/E_\gamma$

- a),b) soft models with $I\!P$-exchange (VDM); diffractive scattering
- c),d) : QCD and QCD-inspired models (e.g. fusion processes) :
  c) QCD-approach by Ryskin : gluon ladder between p and J/ψ
  d) QCD : colour-singlet model: direct boson-gluon fusion