

## Recent results on charmonium production at HERA-B

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HERA-B is a fixed target experiment at the 920 GeV HERA proton beam at DESY which uses a variety nuclear targets. A di-lepton trigger can select events containing leptonic  $J/\psi$  decays. During the 2002/2003 HERA-B run, 150 million di-lepton triggers and 200 million minimum bias triggers were recorded. About 300.000 leptonic  $J/\psi$  decays ( $\sim 170.000 J/\psi \rightarrow \mu^+ \mu^-$  and  $\sim 130.000 J/\psi \rightarrow e^+ e^-$ ) were acquired with the di-lepton trigger. A complete study of the charmonium production (such as  $J/\psi$ ,  $\psi'$  and  $\chi_c$  states) in the negative Feynman  $x$  region ( $x_F$ ), and of the  $J/\psi$  polarization will be presented. Results will be given also on the nuclear dependence of charmonium production, on  $\chi_c$  and  $\psi'$  production and the determination of the  $b$   $\bar{b}$  cross section in proton-nucleus collisions.

**Primary author:** SPIGHI, Roberto (Bologna)

**Presenter:** SPIGHI, Roberto (Bologna)

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