

## High Energy Physics - Experiment

# Observation of a ppb mass threshold enhancement in $\psi^{\prime} \rightarrow \pi^+ \pi^- J/\psi (J/\psi \rightarrow \gamma p \bar{p})$ decay

The [BESIII Collaboration](#)*(Submitted on 29 Jan 2010)*

The decay channel  $\psi^{\prime} \rightarrow \pi^+ \pi^- J/\psi (J/\psi \rightarrow \gamma p \bar{p})$  is studied using a sample of  $1.06 \times 10^8$   $\psi^{\prime}$  events collected by the BESIII experiment at BEPCII. A strong enhancement at threshold is observed in the  $p \bar{p}$  invariant mass spectrum. The enhancement can be fit with an  $S$ -wave Breit-Wigner resonance function with a resulting peak mass of  $M = 1861^{+6}_{-13}$  (stat) $^{+7}_{-26}$  (syst) MeV/ $c^2$  and a narrow width that is  $\Gamma < 38$  MeV/ $c^2$  at the 90% confidence level. These results are consistent with published BESII results. These mass and width values do not match with those of any known meson resonance.

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