ω and η meson production in $p + p$ reactions at $E_{kin} = 3.5$ GeV

Khaled Teilab[(a)] for the HADES collaboration

[(a)] Institut für Kernphysik, Universität Frankfurt, Germany

The **H**igh **A**cceptance **D**i-**E**lectron **S**pectrometer (HADES) is a multi-purpose device loacted at the SIS 18 accelerator-complex at GSI in Darmstadt, Germany. Besides its high geometrical acceptance ($18° - 88°$ in polar angle and close to $360°$ in azimuthal angle), HADES possesses a hadron-blind RICH detector allowing for online electron triggering and offline electron identification. Using time-of-flight and energy loss in drift chambers and scintilators, further identification of protons, charged pions, electrons and charged kaons is possible.

With a proton beam of 3.5 GeV kinetic energy focused on a liquid hydrogen target, 1.7×10^9 $p + p$ reactions were recorded. More than 67000 ω and 32000 η mesons have been reconstructed in the exclusive reaction channel $p + p \rightarrow pp\pi^+\pi^-\pi^0$. Results on the integrated as well as on differential cross sections for these exclusive production channels are presented. In particular, angular and momentum distributions will be shown. Furthermore, about 260 ω mesons were reconstructed in the inclusive reaction channel $p + p \rightarrow e^+e^-X$. The resulting inclusive ω production cross section is determined for the first time in this energy regime.

E-mail: K.Teilab@gsi.de