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### **”The reaction $\pi^- p \rightarrow \pi^- \pi^- \pi^+ p$ at COMPASS: development of the analysis methods and selected results.”**

*Thursday 11 September 2014 15:00 (30 minutes)*

The COMPASS experiment, at CERN SPS, has collected the worlds largest statistics of the reaction  $\pi^- p \rightarrow \pi^- \pi^- \pi^+ p$  - more than  $5 \cdot 10^7$  events.

The amount and also the quality of this data sample allows for detailed studies of  $3\pi$  partial-wave amplitudes behaviour in 2 dimensions: invariant mass  $m(3\pi)$  and four momentum transfer  $t'$ .

The method of traditional mass-independent PWA with 3 body isobar model is performed in multiple  $m(3\pi)$  and  $t'$  bins which is followed by mass-dependent analysis performed simultaneously in all  $t'$  slices. This makes it possible for

efficient separation between resonant and background components. The new PWA method of simultaneous optimization of  $3\pi$  isobaric amplitudes and several  $\pi^+\pi^-$  amplitudes - different for each  $J^PC$   $3\pi$  mother state (so called “de-isobared fit”) is developed and applied to the current data.

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