



Contribution ID: 7

Type: poster

## Non-strange dibaryons studied in coherent double neutral-meson photoproduction on the deuteron

*Tuesday, 25 June 2019 13:30 (1h 30m)*

The search for non-strange  $B = 2$  (dibaryon) bound/resonance states has a long history. The dibaryon state is of interest, which can be a molecule consisting of two baryons or a spatially compact hexaquark object. The  $\gamma d \rightarrow \pi^0 \pi^0 d$  reaction has been experimentally investigated at incident energies ranging from 0.58 to 1.2 GeV to study non-strange dibaryons. The angular distributions of deuteron emission in the  $\gamma d$  center-of-mass cannot be reproduced by quasi-free production of neutral pions followed by deuteron coalescence. Additionally a 2.14-GeV peak is observed in the  $\pi^0 d$  invariant mass distribution. These suggest a sequential process such as  $\gamma d \rightarrow R_{IS} \rightarrow \pi^0 R_{IV} \rightarrow \pi^0 \pi^0 d$ . We discuss the newly observed two isoscalar dibaryons ( $R_{IS}$ ) and an isovector dibaryon ( $R_{IV}$ ) observed in the  $\pi^0 \pi^0 d$  and  $\pi^0 d$  channels, respectively. We also show the  $\gamma d \rightarrow \pi^0 \eta d$  reaction.

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**Session Classification:** Poster session