



## Measurement of the $e^+e^- \rightarrow \pi^+\pi^-\pi^0\pi^0$ and $e^+e^- \rightarrow \pi^+\pi^-\eta$ cross sections and implications for the muon $g-2$ ( $15' + 5'$ )

*Friday 5 August 2016 13:05 (20 minutes)*

The BABAR Collaboration has an intensive program studying hadronic cross sections in low-energy  $e^+e^-$  annihilations, which are accessible with data taken near the Upsilon(4S) via initial-state radiation.

Our measurements allow significant improvements in the precision of the predicted value of the muon anomalous magnetic moment. These improvements are necessary for shedding light on the current  $\sim 3$  sigma difference between the predicted and the experimental values.

We have previously published results on a number of processes with two to six hadrons in the final state. Currently, the largest uncertainty on the calculation of the hadronic contribution in the energy region between 1 and 2 GeV stems from the  $e^+e^- \rightarrow \pi^+\pi^-\pi^0\pi^0$  cross section.

A new precise measurement of this process is presented here, together with measurement of other low-multiplicity channels, such as  $e^+e^- \rightarrow \pi^+\pi^-\eta$ .

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**Session Classification:** Top Quark and Electroweak Physics

**Track Classification:** Top Quark and Electroweak Physics