

# 689<sup>th</sup> ASRC Seminar

Date: Tuesday, June 13, 15:30 ~

Location: Room 302, ASRC bldg.

Speaker: Professor Kenneth H. Hicks  
(Ohio University and JAEA)

Title: Excited States of the Nucleon and New  
Resonance Structures from Two-Pion  
Electroproduction Data

Abstract: The measurement of excited states of the nucleon is a window into the forces between quarks while confined within the nucleon. The spectrum of excited states of the nucleon ( $N^*$ ) has recently been calculated directly from QCD using lattice gauge theory, although within an approximation where the quarks have masses heavier than their physical values. The results show a striking similarity with measured  $N^*$  states. However, more resonances are predicted by lattice QCD than are known. The search for these missing resonances has led experiments to look for other (not yet observed) ways that  $N^*$  states can decay. One possibility is that these states decay primarily to two-pion final states. New data on two-pion electroproduction from the CLAS detector will be presented and discussed.

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