

Abstract Submitted  
for the DNP06 Meeting of  
The American Physical Society

**Hybrid and Conventional Baryons as Four-Body Systems in the Flux-Tube Model** SIMON CAPSTICK, ANTON SOUSLOV, Florida State University — In the strong-coupling limit baryons can be viewed as constituent quarks connected by gluon flux tubes in a Y-shaped configuration. A previous study of the spectrum of hybrid and conventional baryons separated the motion of the gluonic degrees of freedom and that of the quarks using an adiabatic approximation, and showed that the motion of the gluon flux can be approximated by the motion of the junction of the three flux tubes. The calculation described here goes beyond the adiabatic approximation to solve directly for the states of a four-body system comprised of three quarks and a massive junction connected to the quarks by linear strings. Results for the spectrum and properties of hybrid baryons are shown, along with the effects of the motion of the flux on conventional baryons.

Simon Capstick  
Florida State University

Date submitted: 30 Jun 2006

Electronic form version 1.4