

Abstract Submitted
for the HAW14 Meeting of
The American Physical Society

Probing the simplest mesons to study the transverse spatial structure of hadrons¹ MARCO CARMIGNOTTO, TANJA HORN, The Catholic University of America — According to the constituent quark model, mesons are the hadrons with the simplest structures since they are built of two valence quarks only. This relative simple structure gives the mesons one of the best place in our quest to understand the structure and interaction of hadrons on the basis of QCD. The pion, the lightest meson, has been studied in details over the last decades. Measurements of the pion form factor are bringing important information about the pion structure and the meson electroproduction mechanism. Pion form factor data also allow one to extract the pion transverse charge density, an important quantity related to the GPDs that can also provide interesting information on the spatial structure of the nucleon's meson cloud. In this talk, I will present the transverse pion charge density extracted from world data of the pion form factor and their comparison to proton transverse charge densities. The kaon, the next simplest system available for studies, is relatively unexploited to date due to the lack of the necessary experimental facilities. I will also discuss the current status and opportunities for kaon studies in the 12 GeV era at Jefferson Laboratory and future facilities like the Electron-Ion Collider, as well as instrumentation required for such studies.

¹This work was supported in part by NSF grants PHY-1019521 and PHY-1306227

Marco Carmignotto
The Catholic University of America

Date submitted: 01 Jul 2014

Electronic form version 1.4