Abstract Submitted
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Kaon transverse charge density from space- and time-like data\textsuperscript{1} Nicholas A Mecholsky, Johann Meija-Ott, Marco Carmignotto, Tanja Horn, Catholic Univ of America, Gerald A Miller, University of Washington, Ian L. Pegg, Lorenzo Resca, Catholic Univ of America — Measurements of electromagnetic form factors play an important role in our understanding of the structure and interactions of hadrons based on the principles of QCD. Transverse charge densities provide a framework for the interpretation of these form factors in terms of the physical charge and magnetization densities. They are obtained as two-dimensional Fourier transforms of the elastic form factors and describe the distribution of charge and magnetization in the plane transverse to the propagation direction of a fast moving nucleon. They are related to the Generalized Parton Distributions (GPDs), which are expected to provide a universal (process-independent) description of the nucleon. The simplest hadronic system that also includes a heavier strange quark is the kaon, whose valence structure is a bound state of a quark and an antiquark. Its elastic electromagnetic structure is parameterized by a single form factor. Recent calculations suggest that strange quarks play a large role in, e.g., the shape of the parton distribution amplitude, making studies of the kaon’s internal structure of the kaon even more important. I will present the first extraction of the kaon transverse charge density from timelike and spacelike data including new data at high center of mass energies.

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