

Interference effect between ϕ and $\Lambda(1520)$ production channels in the $\gamma p \rightarrow K^+ K^- p$ reaction near threshold

Tuesday, 26 July 2016 16:50 (30 minutes)

The ϕ - $\Lambda(1520)$ interference effect in the $\gamma p \rightarrow K^+ K^- p$ reaction has been measured for the first time in the energy range from 1.673 to 2.173 GeV at LEPS/SPring-8. The relative phases between ϕ and $\Lambda(1520)$ production amplitudes were obtained in the kinematic region where the two resonances overlap. The measurement results support strong constructive interference when $K^+ K^-$ pairs are observed at forward angles, but destructive interference for proton emission at forward angles. Furthermore, the observed interference effect does not account for the $\sqrt{s} = 2.1$ GeV bump structure in forward differential cross sections for ϕ photo-production. This fact suggests possible exotic structures such a hidden-strangeness pentaquark state, a new Pomeron exchange and rescattering processes via other hyperon states.

Presenter: RYU, Sun Young (Research Center for Nuclear Physics, Osaka University)

Session Classification: Meson-Nucleon Interactions