Workshop for young scientists with research interests focused on physics at FAIR



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Study of baryon form factor at BESIII / Form Factor measurements at BESIII

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Using data samples collected with BESIII detector at BEPCII collider, we measure Born cross section of e+e- \square pp⁻ at center-of-mass energies \sqrt{s} from 2232.4 to 3671.0 MeV. The effective electromagnetic form factor of the proton is deduced with assumption that electric and magnetic form factors are equal(GE=GM). The ratio |GE/GM|and |GM |are extracted by fitting polar angle distribution of proton for the data samples with larger statistics. For e+e- \square AA⁻ process, the Born cross sections and effective form factors are measured at \sqrt{s} = 2.2324 GeV, 2.40 GeV, 2.80 GeV and 3.08 GeV. It is the first time that e+e- \square AA⁻ proces is studied closed to AA⁻ production thresh-old, and measured cross section is much larger than phase space expectations, which suggests that something more is at play beyond expected phase space behavior. For e+e- \square AA₋(c)^+ A⁻_c^-process, the very weak energy dependence of cross section near threshold indicates that traditional theoretical prediction, which did not take account strong interaction, needs to be modified. With the large statistic of multiple decay modes, The ratio |GE/GM|and |GM |are extracted

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