First-order transition in 2D classical XY-model SNEHADRI OTA, Institute of Physics, Bhubaneswar, SMITA OTA, Institute of Mathematics and Applications, Bhubaneswar — We have carried out micro-canonical Monte Carlo simulations of the extended 2D XY-model in 30×30 lattice using periodic boundary conditions. The energy distributions of the spins have been obtained for the value of the parameter q=55. The energy distribution of the spins in the lattice shows features that can be associated with spin wave and vortex excitations. The results agree with the first-order transition observed in canonical Monte Carlo simulations, due to vortex nucleation.