Bound magnon states in the frustrated ferromagnetic 1D chain
LARS KECKE, TSUTOMU MOMOI, AKIRA FURUSAKI, Condensed Matter Theory Laboratory, RIKEN — We studied a one-dimensional Heisenberg chain with ferromagnetic nearest-neighbour $J_1$ and antiferromagnetic next-nearest-neighbour interactions $J_2$ in a magnetic field. Starting from the fully polarized high-field state, we calculated the saturation field and the dispersions of the lowest lying n-magnon excitations, and examined the possibility of a multi-magnon ground state near the ferromagnetic limit.