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Microscopic study of soft and giant dipole resonances in ^{6}He WATARU HORIUCHI, Department of Physics, Hokkaido University, Sapporo 060-0810, Japan, DAICHI MIKAMI, Hitachi Solutions East Japan, Ltd., Sendai 980-0014, Japan, YASUYUKI SUZUKI, Department of Physics, Niigata University, Niigata 950-2181, Japan, and RIKEN Nishina Center, Wako 351-0198, Japan — We present our recent work on the electric dipole response (E1) of ^{6}He with a fully microscopic six-body calculation [Ref: Phys. Rev. C 89, 064303 (2014)]. The wave functions of the ground and excited states are expressed as a combination of explicitly correlated Gaussians. Final state interactions of three-body decay channels are explicitly taken into account. The ground state properties and the low-lying E1 strength are obtained consistently with observations. Two-peak structure appears in the strength function. The peak at the high-energy region indicates a typical macroscopic picture of the giant dipole resonance, the out-of-phase proton-neutron motion, whereas the lower-lying peaks exhibit in-phase proton-neutron motion in the internal region, out-of-phase motion near the surface region, and spatially extended neutron oscillation, indicating a soft-dipole mode and its vibrationally excited mode. The compressional dipole strength is also examined and discussed in relation to the soft-dipole mode.

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