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**Electric dipole excitations in calcium isotopes** IRINA EGOROVA, ELENA LITVINOVA, Western Michigan University — New results obtained for electric dipole strength in the chain of calcium isotopes with the mass numbers  $A = 40, 42, 44$  and  $48$  are presented. Starting from the covariant mean-field theory, phonon spectra and phonon-nucleon coupling vertices for the phonons with spin  $J \leq 6$  of normal parity were obtained as a self-consistent relativistic random phase approximation solution. Calculations for the dipole nuclear response were performed using the time blocking approximation. For the open-shell nuclei, both quasiparticle and phonon spectra include effects of the superfluid pairing on the equal footing. For the double magic nuclei the phonon space is extended by including phonons of pairing type and the corresponding effects on the spectra are discussed.

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