

Place in a session on general quantum physics

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A quantum particle in a cubic box ANDREW DAVIS, MAXIMILLIAAN KOOPMAN, QING WANG, CONSTANCE DOTY, CHRISTOPHER AROSE, ERIC APFEL, RICHARD KLEMM, Univ of Central Florida — We study the role of O point group symmetry on the wave functions of a quantum particle in a cubic box, for which the potential energy is zero inside the box and infinite outside it. In order to picture the low-energy wave functions, we use a Mathematica moving script that rotates the cube slowly enough that one can decide whether a given possible wave function obeys all of the symmetry operations of the point group. The rules for allowable wave functions with quantum numbers (n_1, n_2, n_3) are determined and the a set of low-energy wave functions will be shown in color-coded movies of rotating boxes.

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