

Objective:

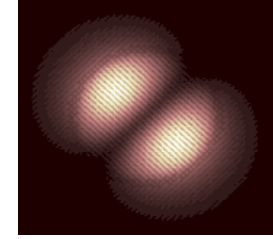
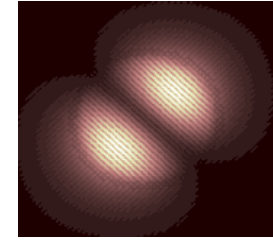
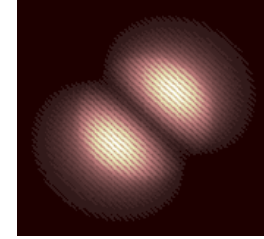
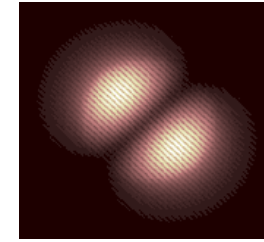
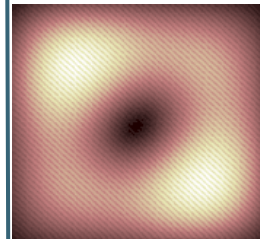
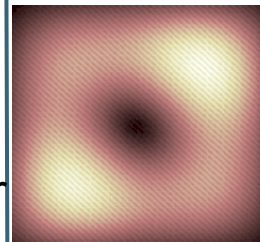
- Please use this as a template and note that the bullets are automatically indented without the use of a space bar

Approach:

- Implement piezoelectric charges through electrostatic potential
- Compare effects of
 - Crystal symmetry
 - Strain
 - Piezoelectricity
- Disk shaped dots $d=10\text{nm}$, $h=2.5\text{ nm}$, 10nm cap, 20nm substr., 0.6nm WL

Impact:

- Demonstrated quantitative agreement with experiment
- Atomistic approach is essential



no strain

with strain

w/ strain&piezo

Result:

- Disk shaped dots $d=10\text{nm}$, $h=2.5\text{ nm}$, 10nm cap, 20nm substr., 0.6nm WL
- Crystal symmetry alone breaks symmetry of set of first excited states (weak)
 - => effective mass, k.p fail!
- Strain breaks symmetry stronger
- Piezoelectric effect opposes strain
 - => can flip orientation of the excited states