Subwavelength Lateral Spectral Splitting

**Scientific Achievement**
Realized a way to perform highly effective photon sorting by wavelength at the nanoscale.

**Significance and Impact**
Spectral splitting can be employed to create multi-junction solar cells that offer substantially higher efficiency than single junction cells.

**Research Details**
- Proof-of-concept spectral splitting devices were realized to demonstrate photon sorting and subsequent charge extraction (panel a).
- Simulations demonstrate extremely effective photon sorting by wavelength using optical resonances in dual-sized Si nanowires (panel b).
- Near-unity absorption can be achieved in the semiconductor (panel c).

Work was performed at Stanford University