

# THz light-driving ferroelectric transitions in Ca-doped STO

- a hidden ferroelectric (FE) phase in the paradigmatic material SrTiO<sub>3</sub> accessed by intense coherent THz excitation of the FE soft mode
- Xian Li *et al.*, *Science* **364**,1079-1082(2019)
- Ferroelectric TO phonon mode at 25 K and E<sub>g</sub> mode splitting at 30K as an indicator of structural phase transition in SrTiO<sub>3</sub>
- Introduce anisotropy to induce ferroelectricity (doping, E-field...)
- Apply THz pump and measure IR-probe rotation induced by phonons.
- Ferroelectricity observed with significantly smaller field strength with calcium doping.

