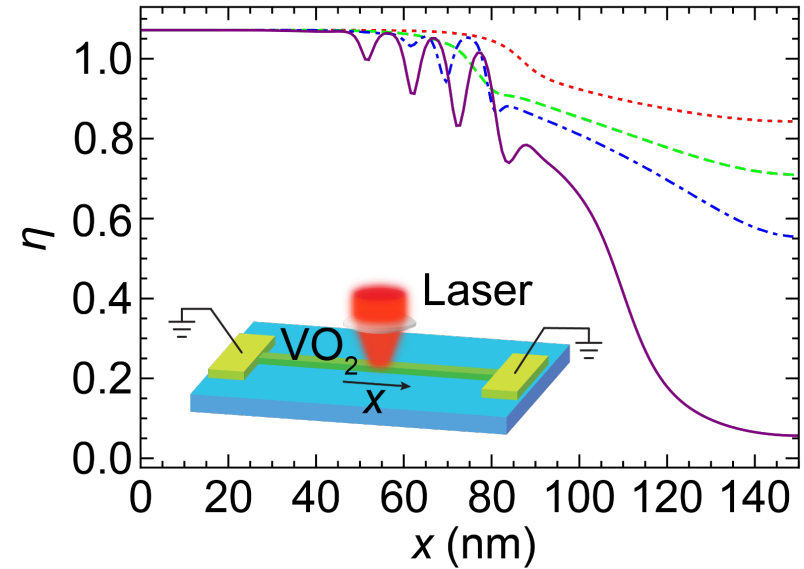
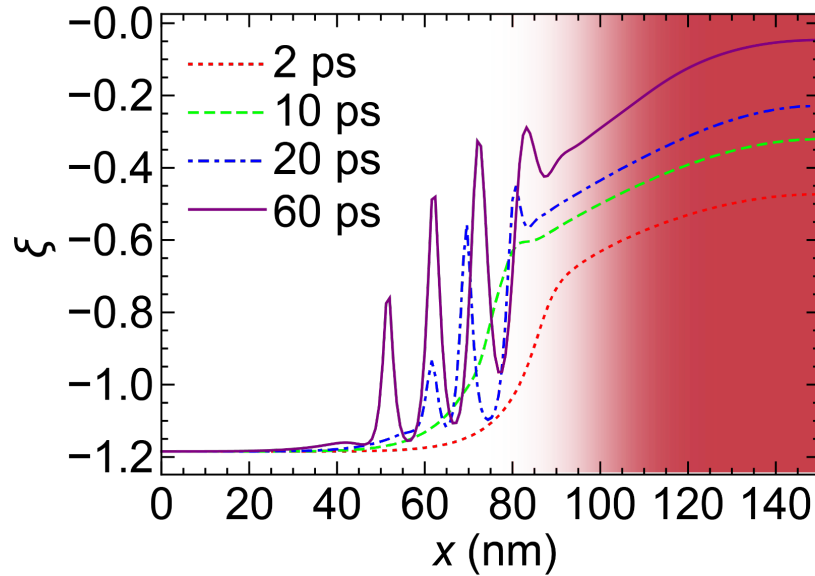


Spinodal Electronic Phase Separation in VO₂



Phase-field modeling shows possible emergence of a transient electronic phase separation in VO₂ upon photoexcitation, a coupling of optical excitation and electronic structure. The phase separation occurs at the edge of the illuminated region, leading to modulated charge density and ionic displacement fields in that vicinity. The characteristic wavelength of the phase modulation increases with elevating temperature. These results shed important light on the phenomena of metal-insulator phase transitions, with promising potential for application in transformative electronic devices that operate by novel means.