Stochastic simulations of HIV evolution identify required treatment durations with novel anti-HIV drugs.

Climate model simulations of deforestation show that reduction in rainfall over India in summer monsoon season is larger for high-latitude deforestation (Left) than for local deforestation (Right). This result demonstrates the importance of remote effects caused by atmospheric circulation changes.

Superalloys that help airplane engines run on cheaper fuel.

The right setup shows the kerosene spray effervescent with ethylene, setup for the scramjet combustor.

An inexpensive small scale solar desalination unit.
Strains on a swelling heart. Understanding the biomechanics of swelling in arteries can help cardiac surgeons make important surgical decisions

E. coli sensor: Conducting polymer-based resistor architecture sensor with receptor groups that interact with the E. coli cell which consequently will be reflected by change in the resistance of the sensor

Cross-section of a three-dimensional phase-field simulation of the same alloy which has been directionally solidified and performed using coupling with thermodynamic databases. The simulation is started from a random configuration of the three-phase nuclei and during evolution the phases self-organize into a pattern which is very similar to the one in the experiments

A network of Hydra Probe soil moisture sensors

Bowen ratio tower and Eddy flux tower to estimate sensible/latent heat fluxes and carbon exchange