Atomistic model of DNA nanotubes using molecular-dynamics simulation. DNA nanotubes are self-assembled tubular constructs with promising applications in nanotechnology.

Transition from isolated supernovae to a superbubble seen in a 512^3 hydrodynamic simulation on SahasraT.

Efficient capturing of free boundary by Adaptive FEM (Finite Element Method).

A numerical simulation of the Rayleigh-Taylor instability (high-density fluid on top of a low-density fluid), in the two-dimensional Cahn-Hilliard-Navier-Stokes equations for a binary-fluid mixture, with 4096^2 collocation points (carried out on a computer cluster with graphics processing units (GPUs)). The left panel shows a pseudocolour plot of the vorticity of the fluid at some time after the instability has set in; the right panel shows a pseudocolour plot of the scalar field that distinguishes the heavy (blue) and light (red) of the fluids (at the same time as in the left panel).

An ultra high-mobility graphene field-effect transistor on boron nitride that detects charge of a single electron.

Microfluidic Cartridge
The splitting in photoluminescence spectra indicates strong interaction between light-matter. By changing the distance between light emitters (Quantum dots) and meta-materials, the interaction between light and matter can be controlled.

Malignant Cell Surveillance System (similar to surveillance cameras powered by face recognition algorithms for the identification of criminals) suitable for cancer screening, combining microfluidic microscopy and digital cytology.

Schematic of the graphene-ZnO-quantum-dots-graphene UV photodetector.

New insights into the phenomenon of flocking in a collection of polar granular objects made active by placing them on a rapidly vibrating surface amongst spherical beads.

(A) A novel water filtration and desalination technology based on field effect and is membrane-less and chemical free. The novelty lies in the increased throughput by improving the Debye length as well as reducing power consumption. This system treats 1 litre of water in 5 minutes consuming 30 J to 40 J of energy (B) Results from the treatment of ground water from Mavallipura, Bangalore (C) E. coli removal.