S1.avi
Title- Solid phase at low shear rate for sparsely doped mixed crystal of spheres and dimers

Description:
Simulation movie spanning 50 time units for low shear ($\dot{\gamma}$=0.005) solid phase of mixed crystal with a dimer fraction of 0.02. For spheres, lobes with 5, 6, and 7 neighbors are colored red, yellow, and cyan, respectively. For dimers, lobes with 5, 6, and 7 neighbors are colored orange, blue, and green, respectively. A pair of 7 and 5 neighbor lobes forms a dislocation while a vacancy is an empty lattice site. The crystal relaxes the strain by rotating as a whole; also notice the dislocations zipping freely across the spherical particle region while being blocked by dimers.

Tags:
Solid phase, dislocations, vacancies, shear induced melting, mixed crystals

S2.avi
Title- Hexatic-like phase at intermediate shear rates for sparsely doped mixed crystal of spheres and dimers.

Description:
Simulation movie spanning 50 time units for intermediate shear ($\dot{\gamma}$=0.035) hexatic-like phase of mixed crystal with a dimer fraction of 0.02. Color scheme is the same as that for movie file S1.avi. Dislocations form a transient grain boundary across which the crystal strains at different shear rates.

Tags:
Hexatic-like phase, dislocations, vacancies, shear induced melting, mixed crystals

S3.avi
Title- Liquid phase at high shear rates for sparsely doped mixed crystal of spheres and dimers

Description:
Simulation movie spanning 50 time units for high shear ($\dot{\gamma}$=0.1) liquid phase of mixed crystal with a dimer fraction of 0.02. Color scheme is the same as that for movie file S1.avi. The dislocations become homogenously distributed through the system, with the system shearing freely.

Tags:
Liquid phase, dislocations, vacancies, shear induced melting, mixed crystals

S4.avi
Title- Solid phase at low shear rates for highly doped mixed crystal of spheres and dimers

Description:
Simulation movie spanning 50 time units for low shear ($\dot{\gamma}$=0.002) solid phase of mixed crystal with a dimer fraction of 0.7. Color scheme is the same as that for movie file S1.avi. Both dislocation motion and vacancy diffusion are highly restricted; the system shears through dislocations hopping across dislocation cages.

Tags:
Solid phase, dislocations, vacancies, shear induced melting, mixed crystals

S5.avi
Title- Hexatic-like phase at intermediate shear rates for highly doped mixed crystal of spheres and dimers

Description:
Simulation movie spanning 50 time units for intermediate shear ($\dot{\gamma}$=0.016) hexatic-like phase of mixed crystal with a dimer fraction of 0.7. Color scheme is the same as that for movie file S1.avi. Dislocations are restricted but form a transient grain boundary at the top, across which the crystal strains at different shear rates.

Tags:
Hexatic-like phase, dislocations, vacancies, shear induced melting, mixed crystals

S6.avi
Title- Liquid phase at high shear rates for highly doped mixed crystal of spheres and dimers

Description:
Simulation movie spanning 50 time units for high shear ($\dot{\gamma}$=0.04) liquid phase of mixed crystal with a dimer fraction of 0.7. Color scheme is the same as that for movie file S1.avi. The system shears homogeneously by formation of smaller dislocation grains distributed throughout the system.

Tags:
Liquid phase, dislocations, vacancies, shear induced melting, mixed crystals