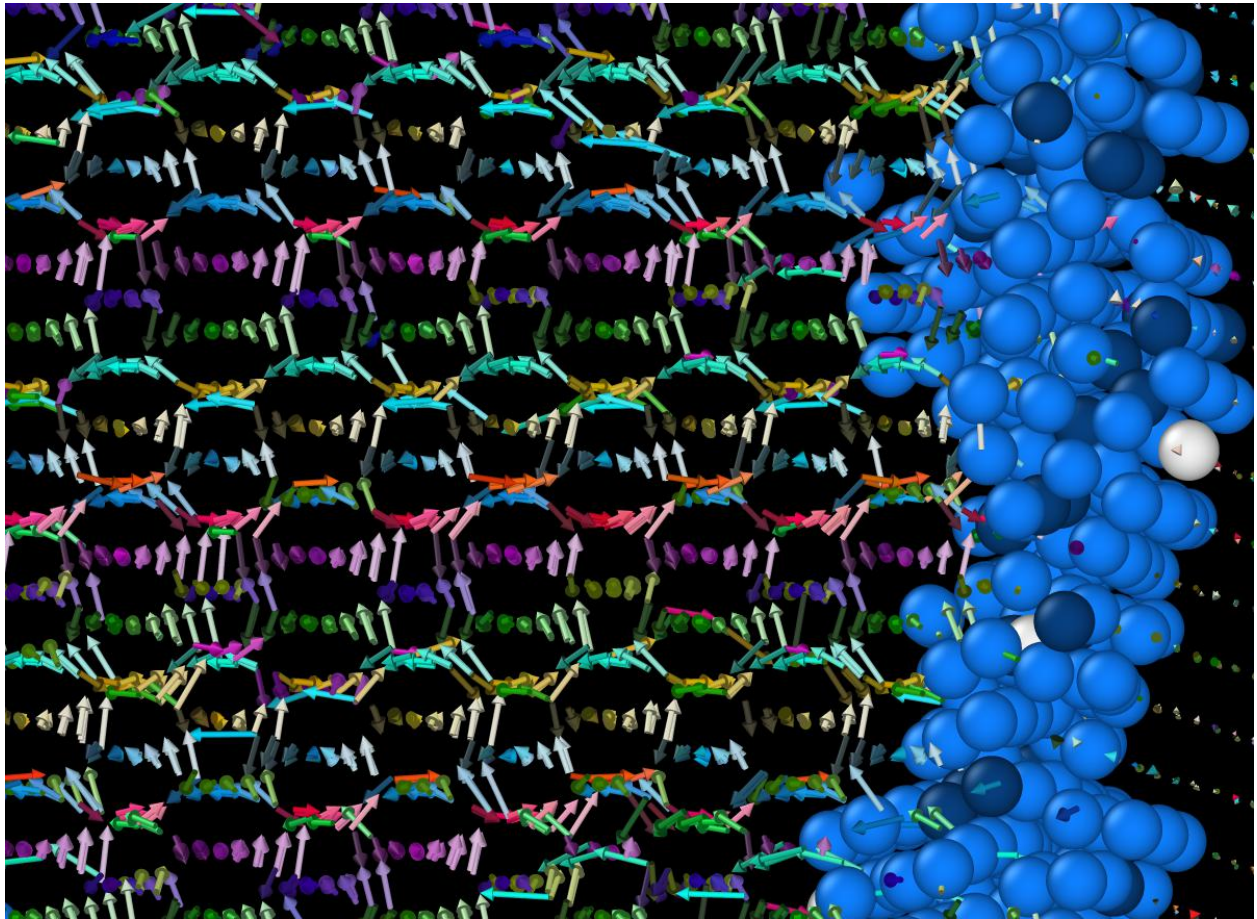


# Symmetry in motion



This (5.4 nm x 3.5 nm) image depicts the displacement field swept out by a mobile  $\Sigma 45$   $\langle 210 \rangle$   $84^\circ$  symmetric tilt boundary in BCC Fe in a molecular dynamics simulation performed at 100 K with constrained boundary conditions. Atoms in the grain boundary core are shown explicitly, colored by coordination, while atomic displacements are colored by orientation on the sphere. The strikingly ordered three dimensional displacement pattern is in sharp contrast to the disordered core structure of the grain boundary – the displacements even form domain wall like structures, revealing an unexpected connection between displacement and spin textures!