

**Caption for the animated figure (Supplementary File).** Animation of the percolation pathway for N-LFP along the **b** direction, corresponding to the one-dimensional percolation path of lowest activation energy,  $E_{a_b} = 0.91$  eV. Li1 species is located within the percolation pathway, here presented as a yellow isosurface. The  $\text{PO}_4^-$  groups are presented as violet tetrahedra, while the O-coordinated Fe species are exhibited as brown, strongly-distorted octahedra. Li ions are presented as green spheres of 0.94 occupancy. Oxygen atoms are shown as red spheres, while the substituting N species in violet partly fills the sites mostly occupied by O2.