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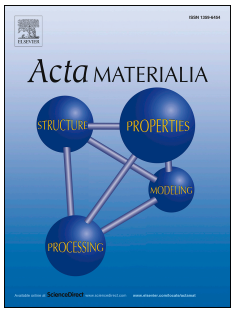

A free energy landscape perspective on the nature of collective diffusion in amorphous solids

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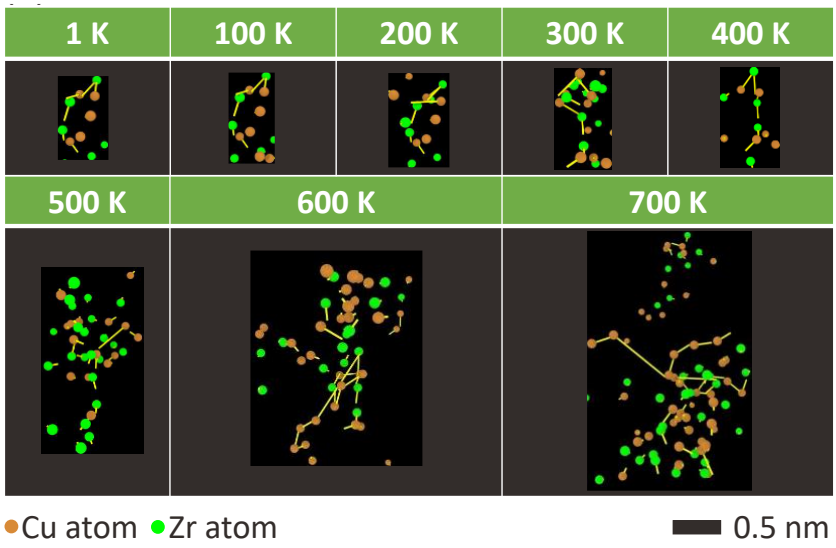
Graphic abstract



The collection diffusion mechanism and the related free energy surface of amorphous solids is explored with accelerated molecular dynamics which significantly expands the observation time of diffusion process with atomic resolution. The diffusion patterns are recognized over very wide temperature range from deep glassy state to glass transition that has never been achieved via the conventional atomistic simulations. The string-like motion and its temperature dependence are discussed in terms of free energy landscape.