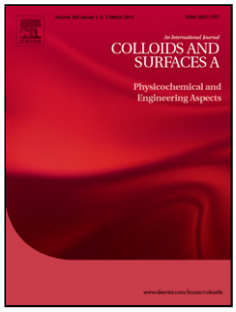

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Speed-dependent ice bandings in freezing colloidal suspensions

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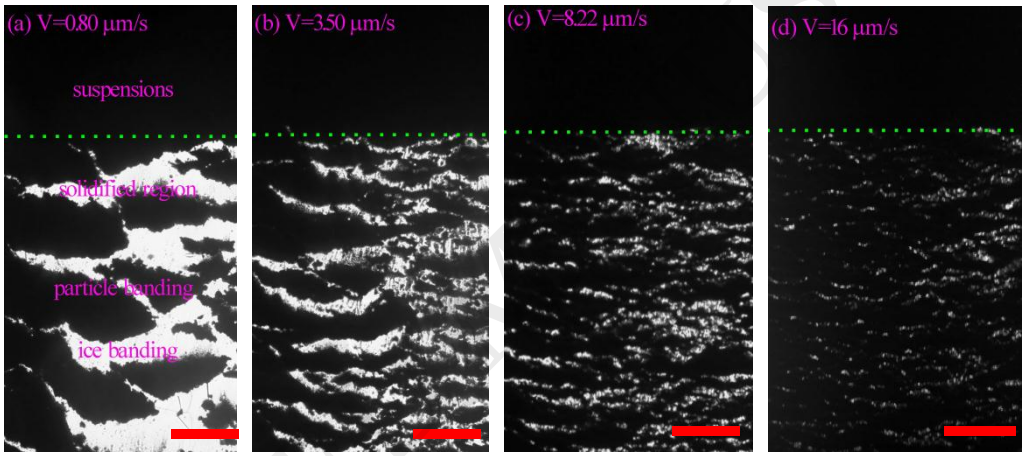
Graphical abstract



With quantitative experiments, we propose a possible mechanism of speed-dependent ice bandings by focusing on the particle packing density and dynamic interface undercooling. The particle packing density ahead of the freezing interface decreases with increasing pulling speeds, attributed to the speed-dependent packing of particles. Through affecting the curvature undercooling of pore ices, the speed-dependent packing of particles can be used to explain speed-dependent thicknesses of ice bandings. The dynamic interface undercooling was obtained to explore curvature undercooling of pore ices and quantitative details of transient interface positions, speeds and undercooling were given. All the evidences imply that

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