

Abstract Submitted
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Glassy dynamics of 2D colloid crystals in a random pinning potential¹ SUNGCHEOL KIM, ALEXANDROS PERTSINIDIS², XINSHENG LING, Brown University — Recently, we have demonstrated that a monolayer charged colloidal crystal confined to a rough charged surface provides a realization of the Larkin-Ovchinnikov random-pinning model in two dimensions [1]. The statics of the system is found to agree with Larkin's prediction of balkanization into small ordered domains. However, the dynamics are in disagreement with the collective creep model. Detailed analysis of the particle trajectories suggest that collective creep is preempted by channel flow. We also find that the velocity response to a step-like driving force shows a stretched exponential behavior similar to that found in structural glasses. Here, we provide a detailed analysis of this process.

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