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Effect of pinning force on critical current using molecular dynamic simulation ABDALLA OBEIDAT, HADEEL ABU LAHIM, Jordan University of Science and Technology — Molecular dynamics have been used to study the effect of pinning force on the critical current at different temperatures. Our simulation is built on assuming a two dimensional periodic arrays of vortices and pins at different sites. The critical current density has been studied at different temperatures by solving the over damped equation of vortex motion taking into account the vortex-vortex interaction, the thermal force, the vortex-pinning interaction as well as the driving Lorentz force. The results show a second phase transition at specific low temperature at all pinning forces with a definite pinning size.

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