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Excitons in moving lattices JASON LEONARD, ALEXANDER WINBOW, MIKAS REMEIKA, YULIYA KUZNETSOVA, ALEXANDER HIGH, AARON HAMMACK, LEONID BUTOV, University of California at San Diego, JOSEPH WILKES, ALRUN GUENTHER, ALEXANDER IVANOV, Cardiff University, MICAH HANSON, ARTHUR GOSSARD, University of California at Santa Barbara — We report on the study of indirect excitons in moving lattices–conveyers– created by a set of AC voltages applied to the electrodes on the sample surface. The wavelength of this moving lattice is set by the electrode periodicity, the amplitude is controlled by the applied voltage and the speed is controlled by the AC frequency. We probed the conveyer speeds from well below to well above the sound velocity. We observed the dynamical localization-delocalization transitions for excitons in the conveyers and measured its dependence on the exciton density and conveyer speed and amplitude. We also developed the theory of exciton transport via conveyers.

Jason Leonard
University of California at San Diego

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