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Solitons and Quasielectrons in the Quantum Hall Matrix Model

T. HANS HANSSON, JANIK KAILASVUORI, ANDERS KARLHEDE, Stockholm University, RIKARD VON UNGE, Masaryk University, Brno — We show how to incorporate fractionally charged quasielectrons in the finite quantum Hall matrix model. The quasielectrons emerge as combinations of BPS solitons and quasiholes in a finite matrix version of the noncommutative ϕ^4 theory coupled to a noncommutative Chern-Simons gauge field. We also discuss how to properly define the charge density in the classical matrix model, and calculate density profiles for droplets, quasiholes and quasielectrons.

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