

A COMBINED DISSOCIATIVE AND KICK-OUT DIFFUSION MODEL  
WITH CHARGE EFFECTS, PART II: OUT-DIFFUSION

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[Received 19 May 1999. Read 30 November 2000. Published 30 August 2002.]

ABSTRACT

This paper considers a new combined dissociative and kick-out diffusion model subject to boundary and initial conditions that model out-diffusion. Both asymptotic and numerical solutions are presented, and the transition from dissociative to kick-out behaviour is studied. Noteworthy components of the asymptotically reduced problems include a number of novel non-local diffusion equations. A related initial-boundary value problem for the porous medium equation is outlined to highlight and clarify some of the key features of the analysis in the context of a much simpler model.