| $L$ | $\alpha_c$ | $\beta_c$ |
|---|---|---|
| 100 | 0.901(4) | 0.701(2) |
| 200 | 0.901(2) | 0.697(1) |
| 500 | 0.905(2) | 0.714(1) |

TABLE I: Values of $\alpha$ and $\beta$ at the continuous transitions obtained via the derivative method.

low-density phases does not fall along the line $\alpha = \beta$, and appears to be somewhat curved.

One might inquire whether the differences in the phase boundaries of the lattice and continuous-space models merely reflect finite-size effects in the latter. We have verified that in the *lattice* TASEP with $L = 200$, the phase boundaries fall quite near their expected (infinite-size) positions. Comparison of the phase boundaries (in continuous space) for $L = 200$ and 500 suggests that finite-size effects are somewhat stronger in the continuous space model than on the lattice. Given the lack of particle-hole symmetry, however, it appears very unlikely that the continuous-space phase boundaries will converge to those of the lattice model in the infinite-size limit.

The differences between the lattice and continuous-space models reflect, in part, the absence of particle-hole symmetry in the latter; particle positions fluctuate in continuous space, but are fixed in the lattice model. In continuous-space, moreover, particles occupying neighboring wells may influence one another via the repulsive potential $V_{int}$. On the lattice model no such influence exists, beyond simple exclusion. In continuous space, repulsive interactions should tend to spread particles more uniformly than on the lattice, promoting particle removal, and hindering insertion. Thus the transition from high to low density occurs for $\beta < \alpha$. Since repulsion is more significant for higher densities (i.e., larger $\alpha$) the phase boundary should curve