**Dynamics of macromolecules in confined environments**[1] ARMIN
RAHMANISISAN, Boston University, CLAUDIO CASTELNOVO, Oxford University, JEREMY SCHMIT, Brandeis University, CLAUDIO CHAMON, Boston University — The dynamics of a ring macro-molecule confined to a two dimensional
cell is studied. A connectivity-preserving kinetically constrained lattice gas model
is introduced and used to study the effects of the shrinking of the box on dynamical
correlations using Monte-Carlo simulations. It is found that the monomers comprising the macro-molecule manage to diffuse around the box with a mean squared
displacement of the order of the square of the box dimensions, even at densities
close to the frozen fully-packed configuration where the overall geometry remains
almost unchanged over long times. Reptation and fingering events are observed and
appropriate correlation functions are introduced to analyze the monomer motion
and polymer reshaping at different densities.

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Date submitted: 20 Nov 2006          Electronic form version 1.4