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Yuan Lou, Thomas Nagylaki and Linlin Su* (lsu@wpi.edu), Department of Mathematical Sciences, Worcester Polytechnic Institute, Worcester, MA 01609. *An Integro-PDE Model From Population Genetics.*

We investigate an integro-partial differential equation that models the evolution of the frequencies for two alleles at a single locus under the joint action of migration, selection, and partial panmixia (i.e., global random mating). For arbitrary migration, we prove the uniqueness and global asymptotic stability of the nontrivial equilibrium. These results extend those for the classic cline problem (i.e., without panmixia). A major issue is to understand the effect of the rate of panmixia on the dynamics of the integro-PDE. Our results establish that increasing the rate of panmixia makes it harder to maintain the allele with the smaller average fitness in the population and increasing panmixia flattens the cline when the migration is conservative. (Received August 07, 2012)