1023-68-1128 **Daniela Genova*** (`genova@mail.usf.edu`), Department of Mathematics, University of South Florida, 4202 E. Fowler Avenue, Tampa, FL 33620. *Topological Properties of a DNA Computing Model.*

Forbidding-enforcing systems (fe-systems) are a language theoretical model of molecular computing. A DNA molecule is modeled as a word and a set of molecules in a tube are modeled as a language. Fe-systems define classes of languages (fe-families) based on boundary conditions through a set of forbidden subwords and a set of enforced words. We define a metric on the set of all languages over a finite alphabet and prove that the resulting topological space is homeomorphic to the Cantor space. We present topological results about the fe-families as subspaces, including the necessary and sufficient conditions under which the fe-fanilies are open. These results prove that none of the Chomsky families of languages can be defined by a fe-system, hence fe-systems provide a completely new way of defining classes of languages. (Received September 25, 2006)