1073-57-122 **Angela Angeleska**, **Natasa Jonoska** and **Masahico Saito*** (saito@usf.edu). *Template guided DNA recombination model via spatial graphs.*

We describe a model of RNA template guided recombination of DNA in certain kinds of ciliates. Genome rearrangement processes are modeled by 4-regular spacial graphs with rigid vertices, called assembly graphs. The rearranged DNA segments are modeled by certain types of paths in the assembly graphs called polygonal paths. The minimum number of such polygonal paths is discussed.

The recombination processes happen in certain succession, possibly with some recombination events performed at the same time, but others in a prescribed order. We use a partial order on DNA molecules that models this situation, and apply it to experimental data to obtain possible intermediate molecules in gene assembly. (Received July 29, 2011)