Hybrid Transition Modes in (Tissue) P Systems

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In addition to the maximally parallel transition mode used from the beginning in the area of membrane computing, also other transition modes for (tissue) P systems have been investigated in more details just recently. We here consider (tissue) P systems with hybrid transition modes where each set of a partitioning of the whole set of rules may work in a different transition mode in a first level and all partitions of rules work together at the (second) level of the whole system on the current configuration in a maximally parallel way. With all partitions of noncooperative rules working in the maximally parallel mode, we obtain a characterization of Parikh sets of *ET*0*L*-languages, whereas with hybrid systems with either the partitions working in the maximally parallel as well as the $= 2$-mode or with all partitions working in the $= 1$-mode, we get computational completeness.

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