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Division rules for tissue P systems inspired by space filling curves. (English) Zbl 07395492

Summary: We propose a new variant of tissue P systems, with oriented division rules and external inputs. The oriented division rules are based on Hilbert’s space filling curve, more precisely on a new variant of parallel array rewriting rules, which generate Hilbert words of different ‘resolutions’ in array representation. The P systems introduced here have also the capability to receive input from an external source. This is illustrated with a simple problem, that of approximating the contour of a 2D picture.

MSC:
68Q07 Biologically inspired models of computation (DNA computing, membrane computing, etc.)
68Q42 Grammars and rewriting systems
68U05 Computer graphics; computational geometry (digital and algorithmic aspects)

Full Text: DOI

References: