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Bruno Durand, Andrei Romashchenko and Alexander Shen*

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A new construction of an aperiodic tile set (Berger's theorem) is suggested based on the construction similar to the fixed-point (Kleene recursion) theorem. This construction is rather flexible so it can be used to ensure some additional properties of the tile set: error robustness, variable zoom factor, implementation of substitution rules. In this way we get a new construction of a tile set that has tiling of maximal Kolmogorov complexity and this set can be made robust. (Received September 05, 2008)