A combinatorial invariant for escape time Sierpinski rational maps

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An escape time Sierpinski map is a rational map drawn from the McMullen family $z \mapsto z^n + \lambda/z^n$ with escaping critical orbits and Julia set homeomorphic to the Sierpinski curve continuum. We address the problem of characterizing (postcritically finite) escape time Sierpinski maps in a combinatorial way. To accomplish this, we define a combinatorial model given by a planar tree whose vertices come with a pair of combinatorial data that codifies the dynamics of critical orbits. We show that each escape time Sierpinski map realizes a subgraph of the combinatorial tree and the combinatorial information is a complete conjugacy invariant.