Self-similar expanding solutions for the planar network flow

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Abstract: We prove the existence of self-similar expanding solutions of the curvature flow on planar networks, where the initial configuration is any number of half-lines meeting at the origin. This generalizes recent work by Schnürer and Schulze, which treats the case of three half-lines. There are multiple solutions, and these are parametrized by combinatorial objects, namely Steiner trees with respect to some complete negatively curved metric on the unit ball which span k points on the boundary.