Poset properties of noncrossing tree partitions

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A noncrossing tree partition is a partition of the interior vertices of a tree embedded in the plane whose blocks are "noncrossing". Given an embedded tree, we consider the poset of its noncrossing tree partitions. The usual poset of noncrossing partitions can be realized using a tree whose interior vertices form a path graph. The noncrossing tree partitions were introduced as a combinatorial model for the collection of wide subcategories of the module category of a tiling algebra. Motivated by recent work on posets of wide subcategories for representation-directed algebras, we examine various combinatorial properties of the poset of noncrossing tree partitions.