# A new Space of Algebraic Measure Trees as State-Space for Stochastic Processes

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In the talk, I present a new topological space of "continuum" trees, which extends the set of finite graph-theoretic trees to uncountable structures, which can be seen as limits of finite trees. Unlike previous approaches, we do not use the graph-metric but formalize the tree-structure by a tertiary operation on the tree, namely the branch-point map. The resulting space of algebraic measure trees has coarser equivalence classes than the older space of metric measure trees, but the topology preserves more of the tree-structure in limits, so that it is incomparable to, and not coarser than, the standard topologies on metric measure trees.

I also show that our new space can be very useful as state-space for stochastic processes in order to obtain (path-space) limits of tree-valued Markov chains.