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The CRT is the Scaling Limit of Unordered Binary Trees

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We prove that a uniform, rooted (unordered and unlabeled) binary tree with n vertices has the Brownian continuum random tree as its scaling limit for the Gromov–Hausdorff topology. The limit is thus, up to a constant factor, the same as that of uniform plane trees or labeled trees.

The proof we gave of this fact is much different from those existing in the case of ordered or labeled trees, since in these cases, existing proofs make a great use of the ordering or labelling of the nodes of the trees. In this talk, I intend to explain the idea of our proof : a direct comparison between (a sub-structure extracted from) binary ordered trees and binary unordered trees.

This is joint work with Grégory Miermont.