He, Hui; Winkel, Matthias

Gromov-Hausdorff-Prokhorov convergence of vertex cut-trees of \( n \)-leaf Galton-Watson trees. (English) Zbl 1466.60177


Summary: In this paper, we study the vertex cut-trees of Galton-Watson trees conditioned to have \( n \) leaves. This notion is a slight variation of Dieuleveut’s vertex cut-tree of Galton-Watson trees conditioned to have \( n \) vertices. Our main result is a joint Gromov-Hausdorff-Prokhorov convergence in the finite variance case of the Galton-Watson tree and its vertex cut-tree to Bertoin and Miermont’s joint distribution of the Brownian CRT and its cut-tree. The methods also apply to the infinite variance case, but the problem to strengthen Dieuleveut’s and Bertoin and Miermont’s Gromov-Prokhorov convergence to Gromov-Hausdorff-Prokhorov remains open for their models conditioned to have \( n \) vertices.

MSC:
60J80 Branching processes (Galton-Watson, birth-and-death, etc.)
60B05 Probability measures on topological spaces

Keywords:
continuum random tree; cut-tree; fragmentation at nodes; Galton-Watson tree; Gromov-Hausdorff-Prokhorov topology; invariance principle; \( \mathbb{R} \)-tree; stable tree

Full Text: DOI Euclid arXiv

References:

This reference list is based on information provided by the publisher or from digital mathematics libraries. Its items are heuristically matched to zbMATH identifiers and may contain data conversion errors. It attempts to reflect the references listed in the original paper as accurately as possible without claiming the completeness or perfect precision of the matching.