

Texas Tech University. Pure Mathematics Colloquium.
Current Advances in Mathematics.

Analysis on ultra-metric spaces and heat kernels

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On Zoom. **Time change: 10:00am–11:00am**
(Central time, U.S.A)

ABSTRACT. Given an ultra-metric space X with a reference measure and a distance distribution function on $[0, \infty)$, we construct a symmetric Markov semigroup whose generator L can be regarded as a non-local Laplace operator on such a space. Besides, it generates a jump process on X that is analogous to symmetric stable Levy processes in the Euclidean space. We obtain explicit formulas and estimates for the heat kernel and the Green function of L . In a particular case when X is the space of p -adic numbers (or its power), this construction recovers the Taibleson Laplacian. We apply this theory also to study of the Vladimirov Laplacian. Even in this well-established setting several of the results are new.