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Titolo	Equidistribution and Counting Under Equilibrium States in Negative Curvature and Trees : Applications to Non-Archimedean Diophantine Approximation / / by Anne Broise-Alamichel, Jouni Parkkonen, Frédéric Paulin
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Descrizione fisica	1 online resource (viii, 413 pages) : illustrations
Collana	Progress in Mathematics, , 0743-1643 ; ; 329
Disciplina	516.362
Soggetti	Dynamics Ergodic theory Geometry, Differential Group theory Number theory Convex geometry Discrete geometry Probabilities Dynamical Systems and Ergodic Theory Differential Geometry Group Theory and Generalizations Number Theory Convex and Discrete Geometry Probability Theory and Stochastic Processes
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Nota di contenuto	Introduction -- Negatively curved geometry -- Potentials, critical exponents and Gibbs cocycles -- Patterson-Sullivan and Bowen-Margulis measures with potential on CAT(-1) spaces -- Symbolic dynamics of geodesic flows on trees -- Random walks on weighted graphs of groups -- Skinning measures with potential on CAT(-1) spaces -- Explicit measure computations for simplicial trees and

graphs of groups -- Rate of mixing for the geodesic flow -- Equidistribution of equidistant level sets to Gibbs measures -- Equidistribution of common perpendicular arcs -- Equidistribution and counting of common perpendiculars in quotient spaces -- Geometric applications -- Fields with discrete valuations -- Bruhat-Tits trees and modular groups -- Rational point equidistribution and counting in completed function fields -- Equidistribution and counting of quadratic irrational points in non-Archimedean local fields -- Counting and equidistribution of crossratios -- Counting and equidistribution of integral representations by quadratic norm forms -- A - A weak Gibbs measure is the unique equilibrium, by J. Buzzi -- List of Symbols -- Index -- Bibliography.

Sommario/riassunto

This book provides a complete exposition of equidistribution and counting problems weighted by a potential function of common perpendicular geodesics in negatively curved manifolds and simplicial trees. Avoiding any compactness assumptions, the authors extend the theory of Patterson-Sullivan, Bowen-Margulis and Oh-Shah (skinning) measures to CAT(-1) spaces with potentials. The work presents a proof for the equidistribution of equidistant hypersurfaces to Gibbs measures, and the equidistribution of common perpendicular arcs between, for instance, closed geodesics. Using tools from ergodic theory (including coding by topological Markov shifts, and an appendix by Buzzi that relates weak Gibbs measures and equilibrium states for them), the authors further prove the variational principle and rate of mixing for the geodesic flow on metric and simplicial trees—again without the need for any compactness or torsionfree assumptions. In a series of applications, using the Bruhat-Tits trees over non-Archimedean local fields, the authors subsequently prove further important results: the Mertens formula and the equidistribution of Farey fractions in function fields, the equidistribution of quadratic irrationals over function fields in their completions, and asymptotic counting results of the representations by quadratic norm forms. One of the book's main benefits is that the authors provide explicit error terms throughout. Given its scope, it will be of interest to graduate students and researchers in a wide range of fields, for instance ergodic theory, dynamical systems, geometric group theory, discrete subgroups of locally compact groups, and the arithmetic of function fields.

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