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Note generali	Includes index.
Nota di contenuto	Preface -- Introduction -- Arithmetic Hyperbolic Surfaces -- Spectral Decomposition -- Maass Forms -- The Trace Formula -- Multiplicity of $\lambda_1$ and the Selberg Conjecture -- L-Functions and the Selberg Conjecture -- Jacquet-Langlands Correspondence -- Arithmetic Quantum Unique Ergodicity -- Appendices -- References -- Index of notation -- Index -- Index of names.
Sommario/riassunto	This text is an introduction to the spectral theory of the Laplacian on compact or finite area hyperbolic surfaces. For some of these surfaces, called "arithmetic hyperbolic surfaces", the eigenfunctions are of arithmetic nature, and one may use analytic tools as well as powerful methods in number theory to study them. After an introduction to the hyperbolic geometry of surfaces, with a special emphasis on those of arithmetic type, and then an introduction to spectral analytic methods on the Laplace operator on these surfaces, the author develops the analogy between geometry (closed geodesics) and arithmetic (prime numbers) in proving the Selberg trace formula. Along with important number theoretic applications, the author exhibits applications of these

tools to the spectral statistics of the Laplacian and the quantum unique ergodicity property. The latter refers to the arithmetic quantum unique ergodicity theorem, recently proved by Elon Lindenstrauss. The fruit of several graduate level courses at Orsay and Jussieu, *The Spectrum of Hyperbolic Surfaces* allows the reader to review an array of classical results and then to be led towards very active areas in modern mathematics.

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