**HYPERBOLIC MANIFOLDS**

proposed by Jean-Pierre Otal

This is an introductory course to hyperbolic geometry.

The hyperbolic space : the Riemann, Minkowsky and Poincaré models. Trigonometry.
The group of isometries. Kleinian groups.
Hyperbolic manifolds. Geometrically finite manifolds
Constructions of compact/finite volume hyperbolic manifolds. Schottky groups.
The Mostow rigidity theorem.
The Teichmüller space.
The geodesic flow on the unit tangent bundle of an hyperbolic manifold : dynamical/measure-theoretical properties.
Construction of the Patterson-Sullivan measure on the limit set. Relation with the bottom of the spectrum of the Laplacian. Description of the Patterson measure for geometrically finite manifolds.

References

Dennis Sullivan, *The density at infinity of a discrete group of hyperbolic motions*, Publications mathématiques de l'IHÉS 50, p. 171-202, (1979).

William Thurston, *Three-dimensional geometry and topology*, Princeton University Press, 1997

William Thurston, *Princeton notes*, http://library.msri.org/books/gt3m/