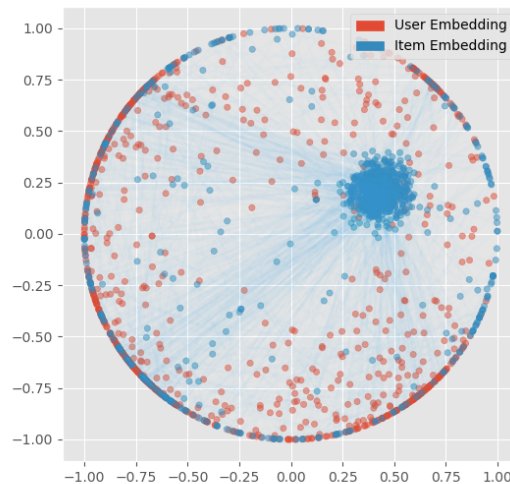


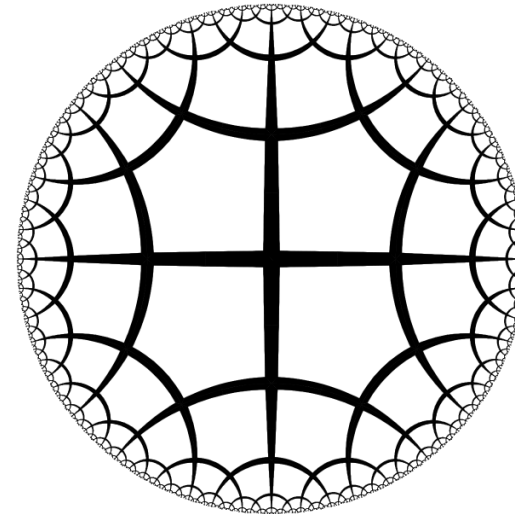
Hyperbolic Recommender Systems (1/2)⁶

Harness *hyperbolic* metric space to represent the relevances.

Amazon Sports Embeddings



Poincaré Ball



Motivation:⁵

Power-law nature of
bi-partite interaction graph \longleftrightarrow Complex
Networks \longleftrightarrow Hyperbolic
Geometry

⁵ “Hyperbolic geometry of complex networks”, D Krioukov, F Papadopoulos, M Kitsak, A Vahdat, M Boguná

⁶ “Hyperbolic recommender systems”, T D Q Vinh, Y Tay, S Zhang, G Cong, X L Li
“Scalable Hyperbolic Recommender Systems” B. P. Chamberlain, S. R. Hardwick, D. R. Wardrope, F. Dzogang, F. Daolio, S. Vargas