Challenges

▷ Network geometry is a promising framework, but its applicability relies heavily on our capacity to find high quality embeddings of the original datasets, which is hard.

▷ We cannot power our way through this challenge using GPUs or supercomputers: we need to design smarter algorithms.
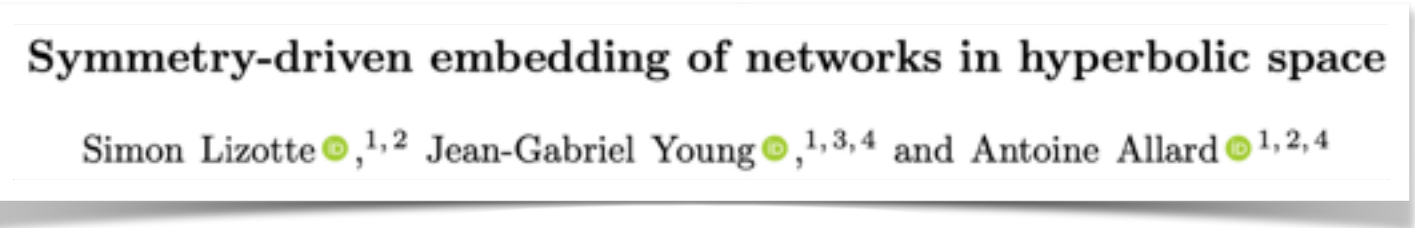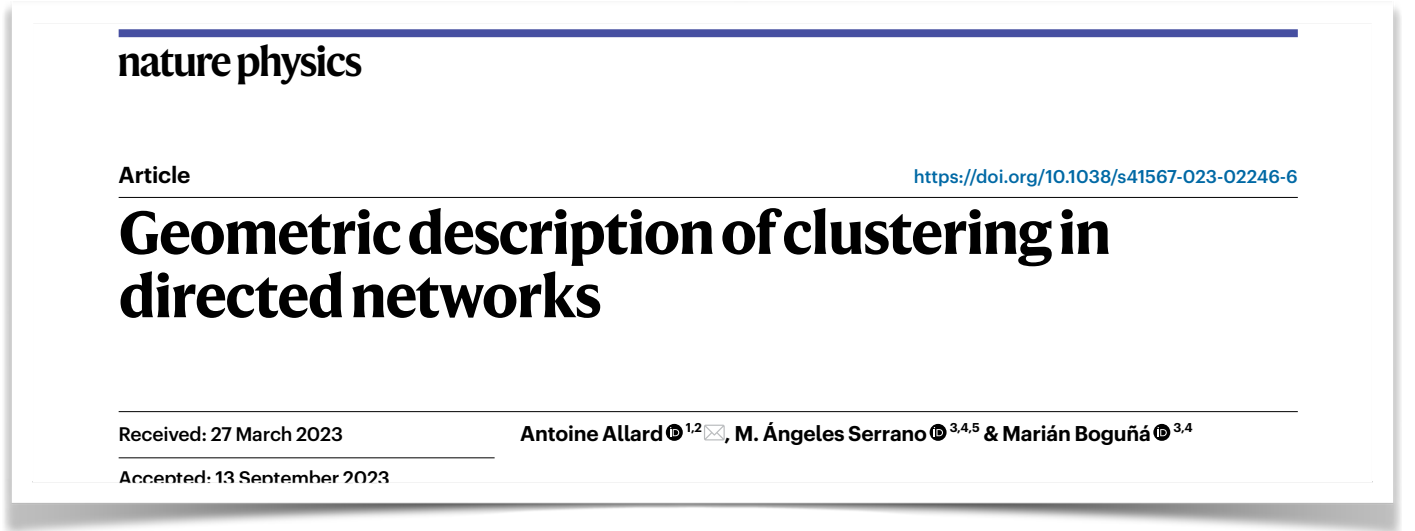
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Symmetry-driven embedding of networks in hyperbolic space

Simon Lizotte [1,2] Jean-Gabriel Young [1,3,4] and Antoine Allard [1,2,4]

arXiv:2406.10711

Hyperbolic Embedding of Directed Networks

Jérémi Lesage, M. Ángeles Serrano, Marián Boguñá and Antoine Allard

Preprint on arXiv expected early 2025

Outline

1. Are simple models enough to study complex systems/networks?

2. **"Simple" ways to encode structural complexity**

   (a) latent metric space

   (b) stub types