Presentation

The Schreier graph of an IRS of a discrete group is a random pointed graph. Conjugation invariance of the IRS corresponds to a property called *unimodularity* in the Schreier graph, which essentially captures the random base points are uniformly distributed through the graphs.

Similarly, if G is a Lie group, X is an associated symmetric space and H is an IRS of G, the quotient H \ X is a random pointed Riemannian manifold that satisfies a similar unimodularity property.

In two lectures, we will introduce unimodular random manifolds (URMs) and explain some of their basic properties, including the relationship with IRSs, the “No-Core Theorem”, and how to regard them as transverse measures on a universal foliated space. (This last point is a very natural version of 'unimodularity means that base points are uniformly distributed' that is unavailable in the graph theory setting.) Time permitting, we'll mention some work with Jean on the space ends of unimodular random manifolds, and/or some work with Abert-Bergeron-Gelander on normalized Betti numbers of locally symmetric spaces.

References

- Ian Biringer, Omer Tamuz, *Unimodularity of Invariant Random Subgroups*, Trans. AMS 2016, Arxiv version.
- Ian Biringer, Jean Raimbault, *Ends of unimodular random manifolds*, PAMS 2017, Arxiv version.
- Miklós Abért, Ian Biringer, *Unimodular measures on the space of all Riemannian manifolds* , Arxiv preprint.

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