**Background**
- Graph/networks are commonly used to encode relationships among entities, used for data exploration.
- Used to model social networks, digital networks, biological interactions, etc.
- Their abstraction makes them difficult to analyze.
- A good graph visualization should present structure quickly and clearly, and support further investigation of the data.

**Approach**
1. Embed a weighted undirected graph in metric space by inducing a distance between all nodes.
2. Extract Persistence Homology (PH) features of the metric space structure and sort them based on persistence.
3. PH features can be used either to contract the nodes that created the feature, or to repulse the graph into two subsets, depending on user input.

**Discussion**
**Strengths:**
- Real-time selection of the PH features instead of choosing number of clusters beforehand.
- Combination of repulsive and attractive forces allows better separation than either force alone.
- Can be extended to other force-directed layouts.
- Performance comparable to traditional force-directed layouts.

**Weaknesses:**
- Shallow exploration of the modifications to the force-directed algorithm.
- Performance with unweighted graphs, extra computations for weights?
- Can this approach be used with other community detection/network clustering methods instead of PH features?
- What happens when the number of PH features is too high to make the barcode impractical?