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- ## Research Interest 1: Gibbsian Line Ensembles

    - **Non-intersecting** random curves $\mathcal{L} = \{\mathcal{L}_i\}_{i \in \Sigma}$ **invariant under resampling**.

    - **Example**: Dyson Brownian motion, Airy line ensemble

    - **Bernoulli line ensembles** : Uniform tightness? Limit as Airy LE? (arxiv: 2011.04478)

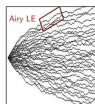   - **Work in progress**: Boxed plane partitions

Figure: Dyson BM and the Airy line ensemble as its edge scaling limit.

Research interest 2: Large deviations of integrable models

1. **Goal**: find the upper-tail large deviation principle of an observable of an exactly solvable model when its Laplace transform formula is available as a Fredholm determinant.

2. **The method utilizes the connection between Lyapunov moments and the upper-tail large deviation principles**.

3. **Recent works**:

   - KPZ upper tail ([Das-Tsai'19])
   - KPZ with general initial data ([Ghosal-Lin'20]), half-line KPZ ([Lin'20])
   - ASEP (observable: $H_0(t)$, the height function) ([Das-Zhu'21], arxiv: 2104.00661)

4. **Work in progress**: the log-Gamma polymer ($\log Z$, the partition function; previously given in [Georgioiu - Seppäläinen'13])