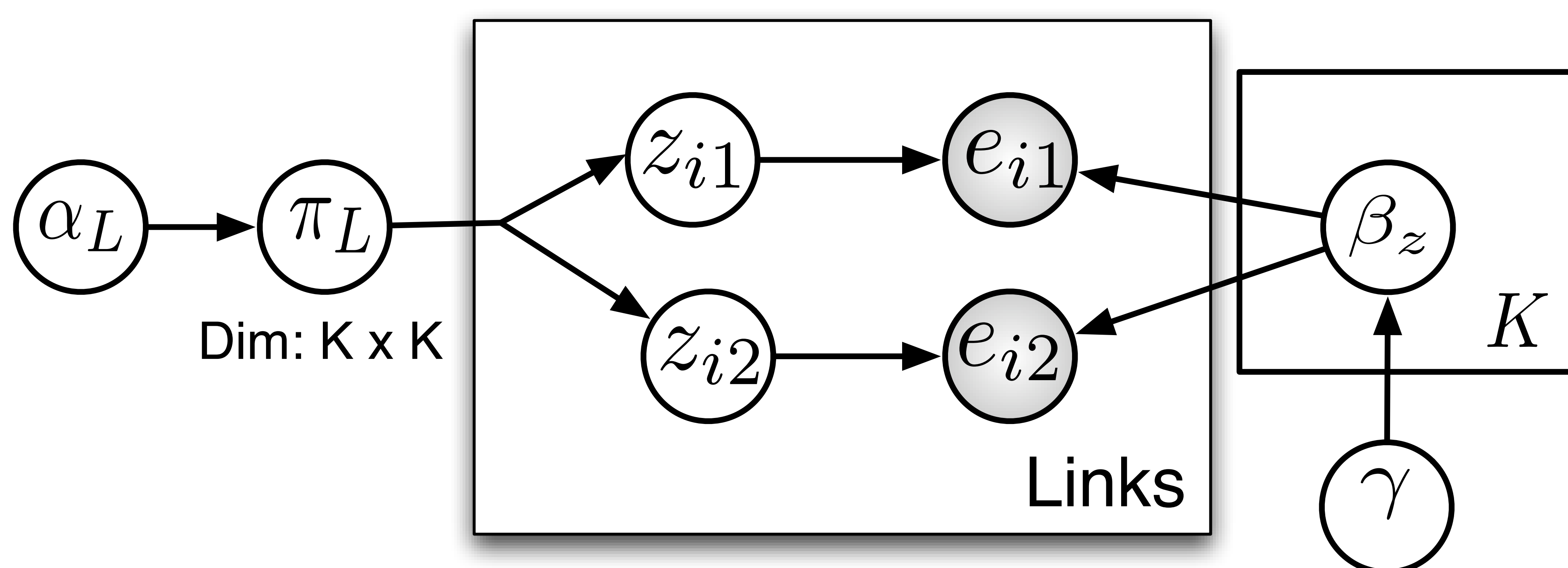


## Overview

- \* We present an empirical comparison between the following families of network models:
  - spectral family of methods based on graph partition optimization
  - probabilistic models (stochastic block models).
- \* Nodes in several types graphs are clustered using these network models and their performances are reported.

### A probabilistic model for sparse graphs (PSK)

*Parkkinen et al., 2009.*



- \* Gibbs sampling is used to perform inference on the latent blocks in the model.

$$p(\mathbf{z}_i = \langle z_1, z_2 \rangle | \langle e_{i1}, e_{i2} \rangle, \mathbf{z}^{-i}, \langle \mathbf{e}_1, \mathbf{e}_2 \rangle^{-i}, \alpha_L, \gamma)$$

$$\propto \left( n_{\langle z_1, z_2 \rangle}^{L-i} + \alpha_L \right) \times \frac{(n_{z_1 e_{i1}}^{-i} + \gamma) (n_{z_2 e_{i2}}^{-i} + \gamma)}{(\sum_e n_{z_1}^{-i} + |E|\gamma) (\sum_e n_{z_2}^{-i} + |E|\gamma)}$$

