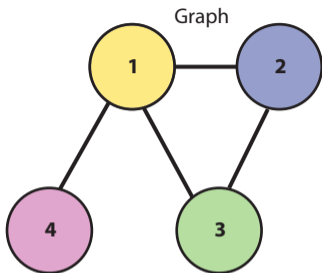


# Graph Fourier Transform



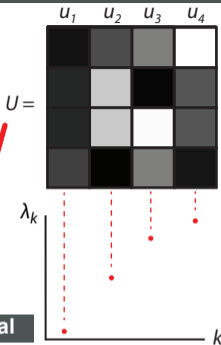
Adjacency matrix

$$A = \begin{bmatrix} 0 & 1 & 1 & 1 \\ 1 & 0 & 1 & 0 \\ 1 & 1 & 0 & 0 \\ 1 & 0 & 0 & 0 \end{bmatrix}$$

Graph Laplacian

$$L = \begin{bmatrix} 3 & -1 & -1 & -1 \\ -1 & 1 & 0 & 0 \\ -1 & 0 & 1 & 0 \\ -1 & 0 & 0 & 0 \end{bmatrix}$$

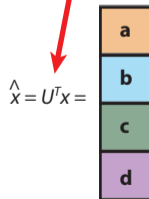
Eigendecomposition



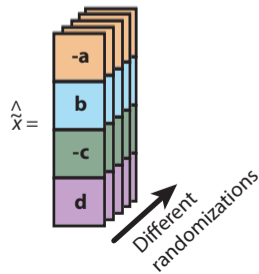
Graph Signal



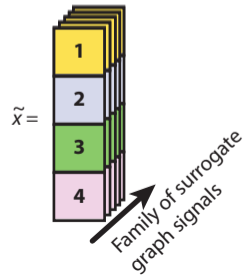
Graph Fourier Coefficients



Sign randomization



Graph surrogate signal



Statistical test

$\left\{ \begin{array}{l} H_0 \\ H_1 \end{array} \right.$