Decompositions.GraphDecomp.dualGraph

Table of Contents

Returns the adjacency matrix and graph Laplacian of the star-expansion of the input hypergraph.

Syntax

```
[adjMat, lapMat] = lineGraph(HG)
```

Input

HG - hypergraph object with incidence matrix property obj.IM

Output

- adjMat - adjacency matrix of the star expansion

- lapMat - graph Laplacian matrix of the starexpansion

Disclaimer

Code

```
function [A ,L] = dualGraph(HG)
    H = HG.IM;
    [n, e] = size(H);
    A = zeros(n+e);
    for i=1:e
        vxc = find(H(:,i));
        for j=1:length(vxc)
            A(vxc(j), n+i) = 1;
        end
    end
    A = A + A';
    D = diag(sum(A));
    L = D - A;
end
```

Published with MATLAB® R2021b