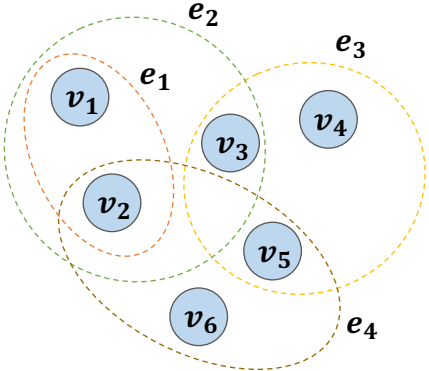

hypergraph: $G = (V, E)$

vertex set: $V = \{v_1, v_2, v_3, v_4, v_5, v_6\}$

hyperedge set: $E = \{e_1, e_2, e_3, e_4\}$

$e_1 = \{v_1, v_2\}$

$e_2 = \{v_1, v_2, v_3\}$

$e_3 = \{v_3, v_4, v_5\}$

$e_4 = \{v_2, v_5, v_6\}$

incidence matrix $H \rightarrow$ if $v \in e$, $H(v, e) = 1$; else, $H(v, e) = 0$.

vertex degree $D_V \rightarrow D_V(v, v) = \deg(v) = \sum_{e \in E} H(v, e)$

hyperedge degree $D_E \rightarrow D_E(e, e) = \deg(e) = \sum_{v \in V} H(v, e)$

adjacency matrix $A = HD_E^{-1}H^T$

Laplacian matrix $\mathcal{L} = I - D_V^{-1/2} H D_E^{-1} H^T D_V^{-1/2}$