

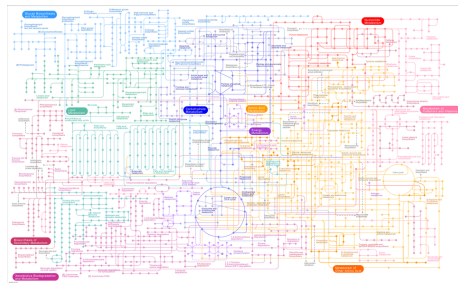
# Network analysis of metabolic subsystems

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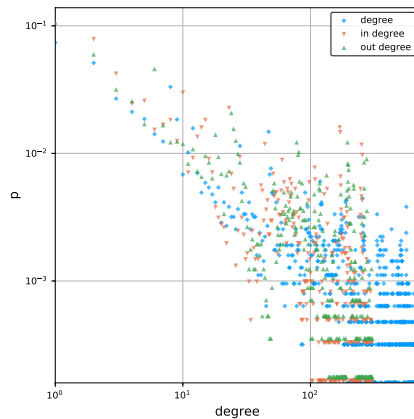
Faculty of Computer and Information Science

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# Network stats

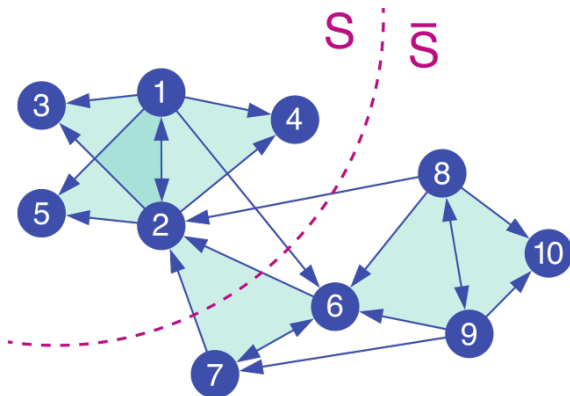
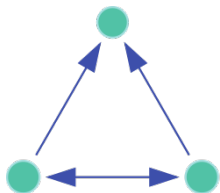


$ V $	$ E $	$\langle C \rangle$	$E_{90}$	$\rho$	$\langle k \rangle$
6,663	656,609	0.012	15	0.015	194.1

# Community detection

Algorithm	NMI
Louvain Modularity	0.1
Clauset-Newman-Moore	0.27
Infomap	N/A
Girvan-Newman	N/A

# Motif based community detection











$$\phi_M(S) = \frac{\text{motifs cut}}{\min(8, 10)} = \frac{1}{8}$$

1

<sup>1</sup>source: <http://snap.stanford.edu/higher-order/>

# Motif based community detection and motif significances

								
motif	M1	M2	M3	M4	M5	M6	M7	M8
Z	-379.0	496.4	6,523	1,171,385	1,055	3,566	4,604	1,411
NMI	0.44	0.40	0.48	0.64	0.23	0.43	0.46	0.11

$$Z = \frac{n - \mu_{\text{rand}}}{\sigma_{\text{rand}}}$$