ex3

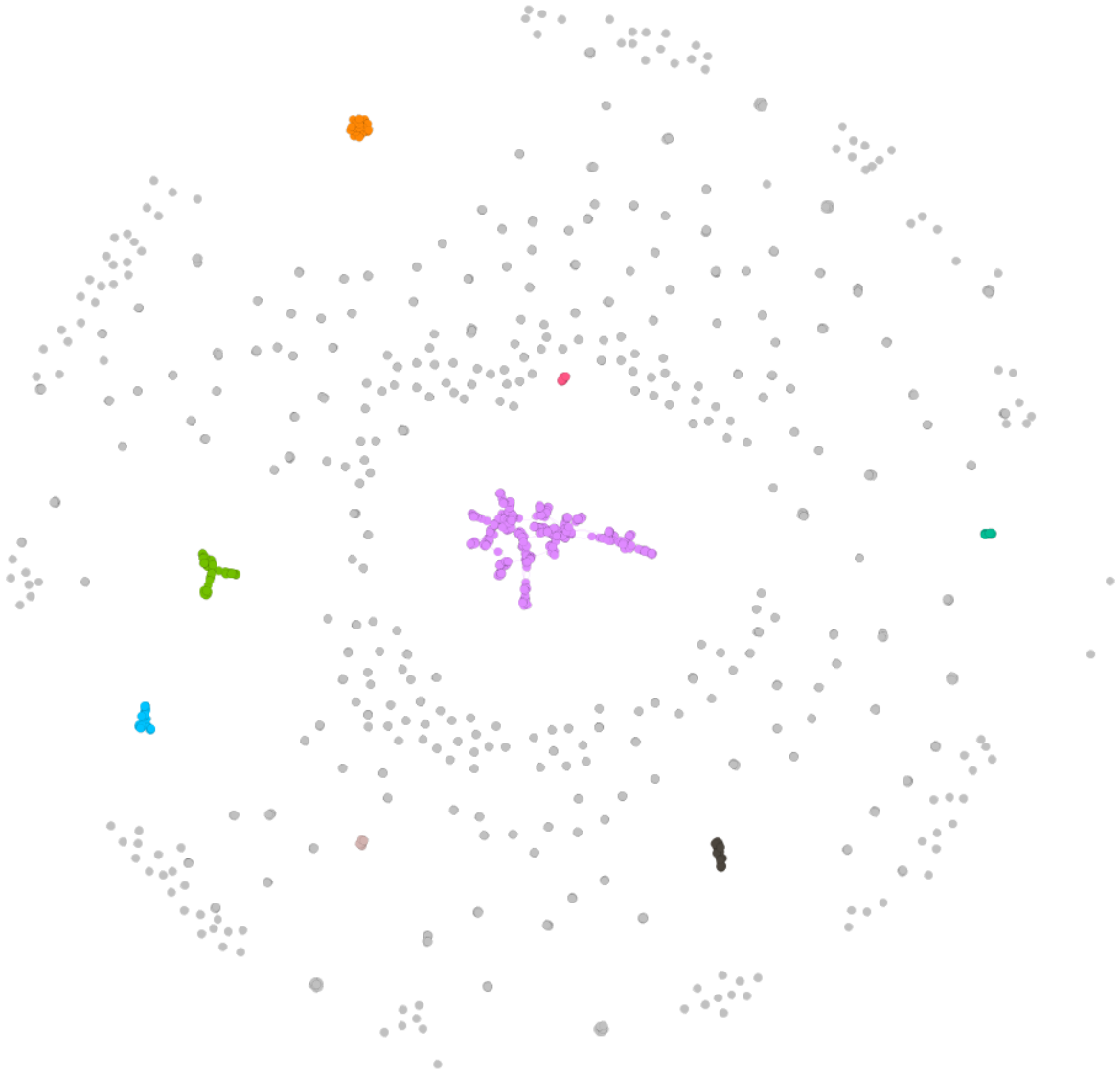
3.1

I have chosen the following dataset:

Coauthorships in network science: coauthorship network of scientists working on network theory and experiment, as compiled by M. Newman in May 2006. A figure depicting the largest component of this network can be found here. M. E. J. Newman, Phys. Rev. E 74, 036104 (2006).

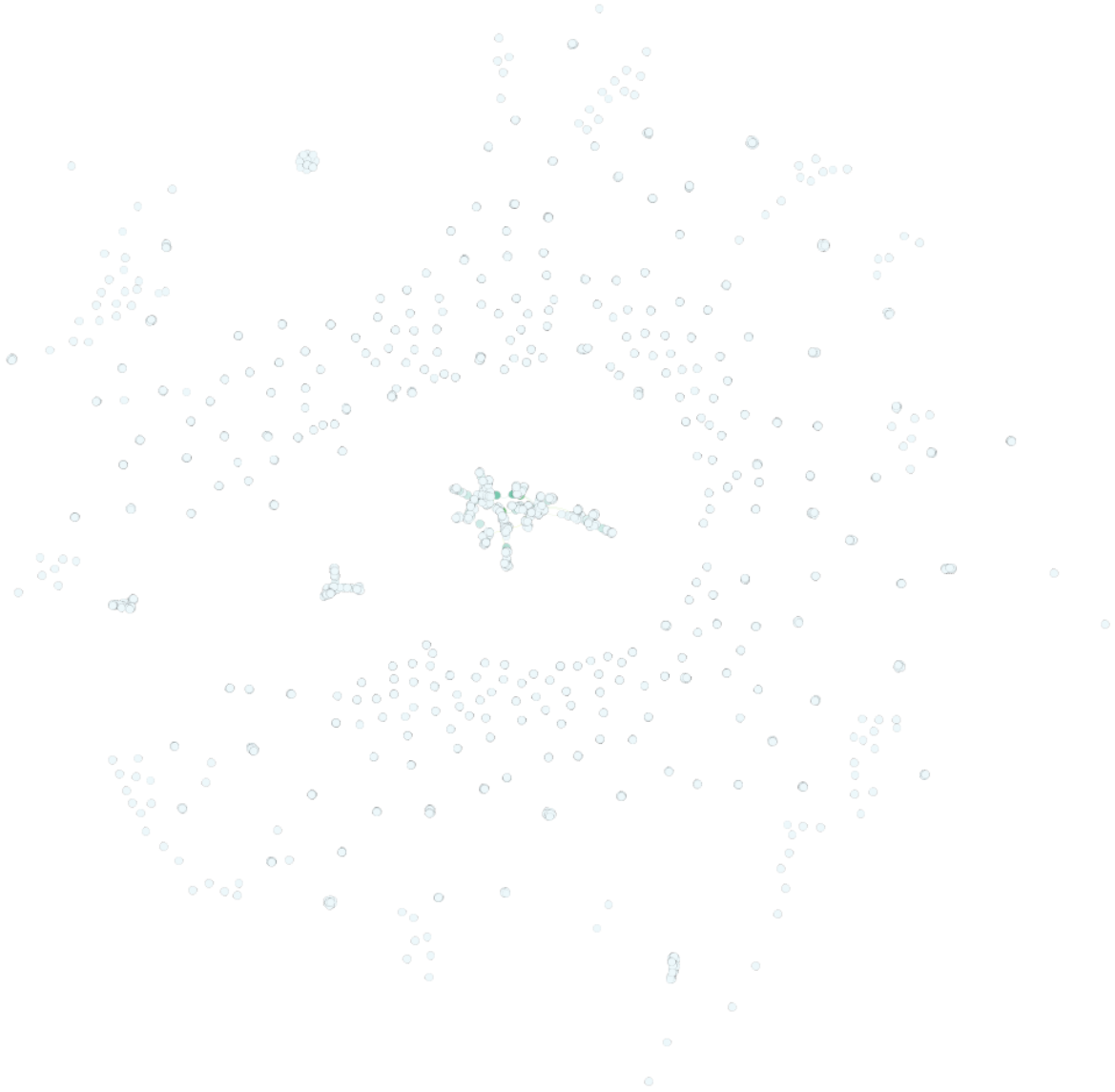
The dataset can be found here: https://gephi.org/datasets/netscience.gml.zip

3.2

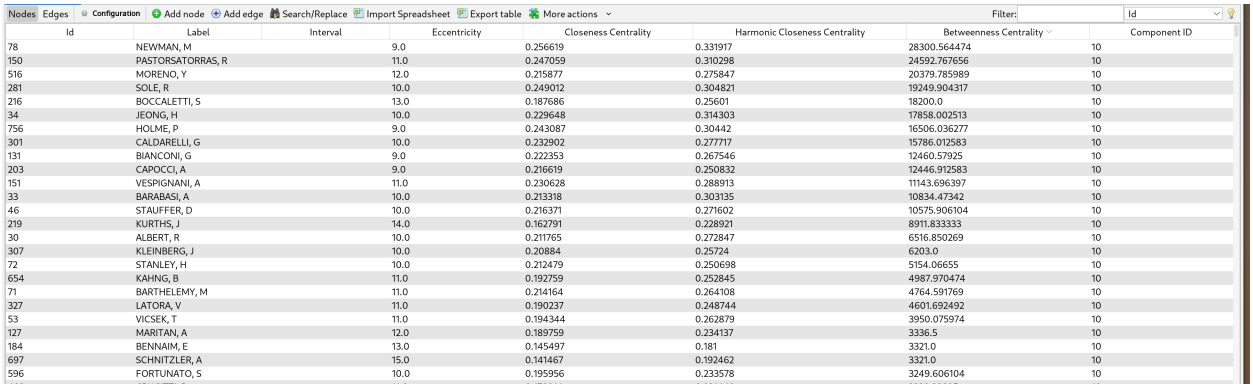


3.3

Colorscheme where rate of green is set by betweeness centrality



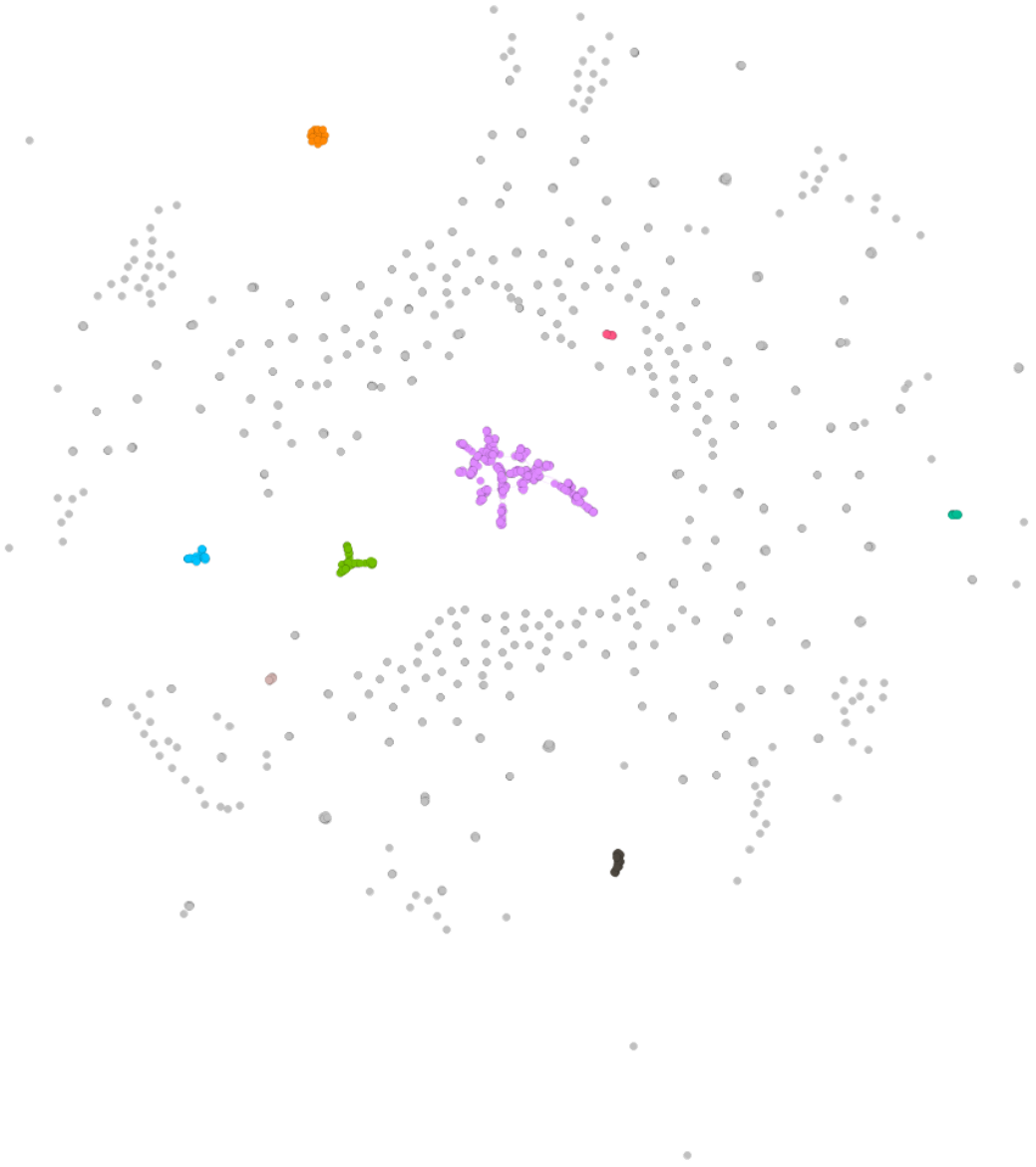
3.4


Nodes Edges Configuration Add node Add edge Search/Replace Import Spreadsheet Export table More actions Filter: Id

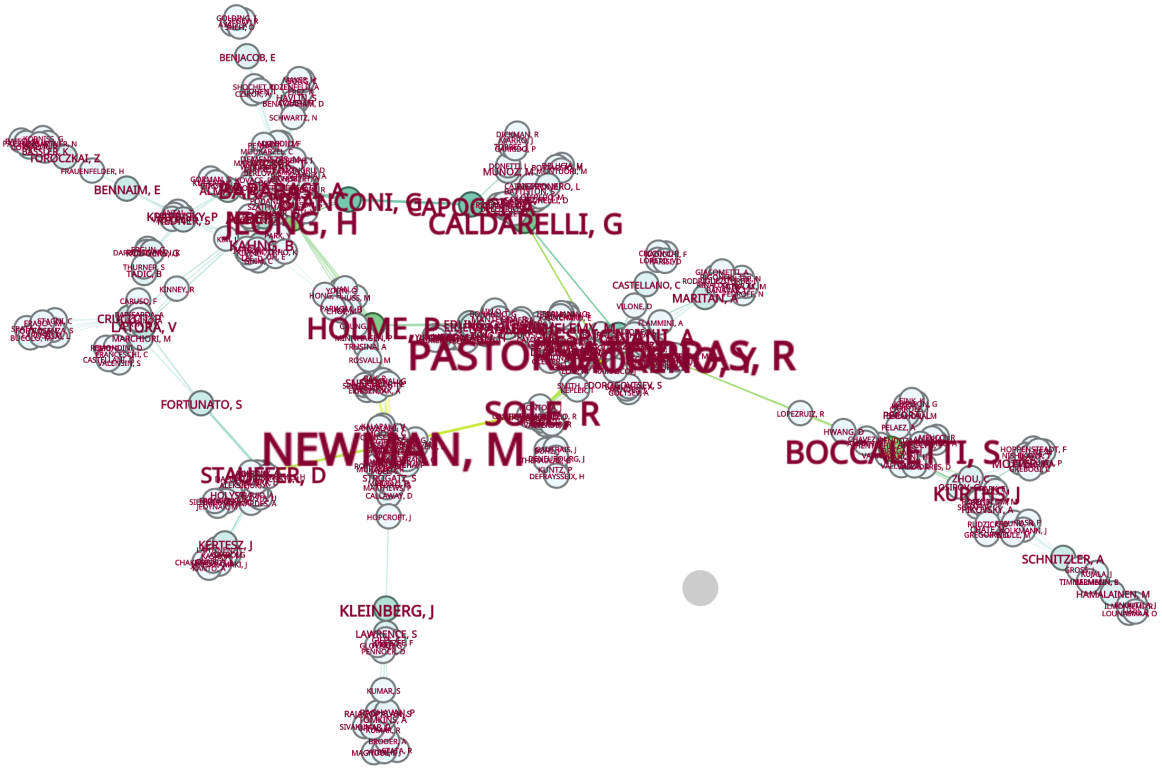
Id	Label	Interval	Eccentricity	Closeness Centrality	Harmonic Closeness Centrality	Betweenness Centrality	Component ID
78	NEWMAN, M		9.0	0.256619	0.331917	28300.564474	10
150	PASTORSATORRAS, R		11.0	0.247059	0.310298	24592.767656	10
516	MORENO, Y		12.0	0.215877	0.275847	20379.785989	10
281	SOLE, R		10.0	0.249012	0.304821	19249.904317	10
216	BOCCALETTI, S		13.0	0.187686	0.25601	18200.0	10
34	JEONG, H		10.0	0.229648	0.314303	17858.002513	10
756	HOLME, P		9.0	0.243087	0.30442	16506.036277	10
301	CALDARELLI, G		10.0	0.232902	0.277717	15786.012583	10
131	BIANCONI, G		9.0	0.222353	0.267546	12460.57925	10
203	CAPOCCI, A		9.0	0.216619	0.250832	12446.912583	10
151	VESPIGNANI, A		11.0	0.230628	0.288913	11143.696397	10
33	BARABASI, A		10.0	0.213318	0.303135	10834.47342	10
46	STAUFFER, D		10.0	0.216371	0.271602	10575.906104	10
219	KURTHS, J		14.0	0.162791	0.228921	8911.833333	10
30	ALBERT, R		10.0	0.211765	0.272847	6516.850269	10
307	KLEINBERG, J		10.0	0.20884	0.25724	6203.0	10
72	STANLEY, H		10.0	0.212479	0.250698	5154.06655	10
654	KAHNG, B		11.0	0.192759	0.252845	4987.970474	10
71	BARTHELEMY, M		11.0	0.214164	0.264108	4764.591769	10
327	LATORA, V		11.0	0.190237	0.248744	4601.692492	10
53	VICSEK, T		11.0	0.194344	0.262879	3950.075974	10
127	MARITAN, A		12.0	0.189759	0.234137	3336.5	10
184	BENNAIM, E		13.0	0.145497	0.181	3321.0	10
697	SCHNITZLER, A		15.0	0.141467	0.192462	3321.0	10
596	FORTUNATO, S		10.0	0.195956	0.233578	3249.606104	10

As visible all there is a very large community (labeled with componentID 10).

The component is also visible in the visual represntation of the graph in pink color.



The same name as seen on top of the list can also be seen in component 10. Here the labels text size is set by the betweeness centrality of a node.



As around 23% of all nodes correspond to component 10, whereas the next biggest component has only 4% of the nodes, the cluster is very important for the overall network. Interestingly the entire network is less connected as one would expect for science work being done in the same field. However the network displays coauthorship and not citations. The citation network is probably a lot more connected.

3.5