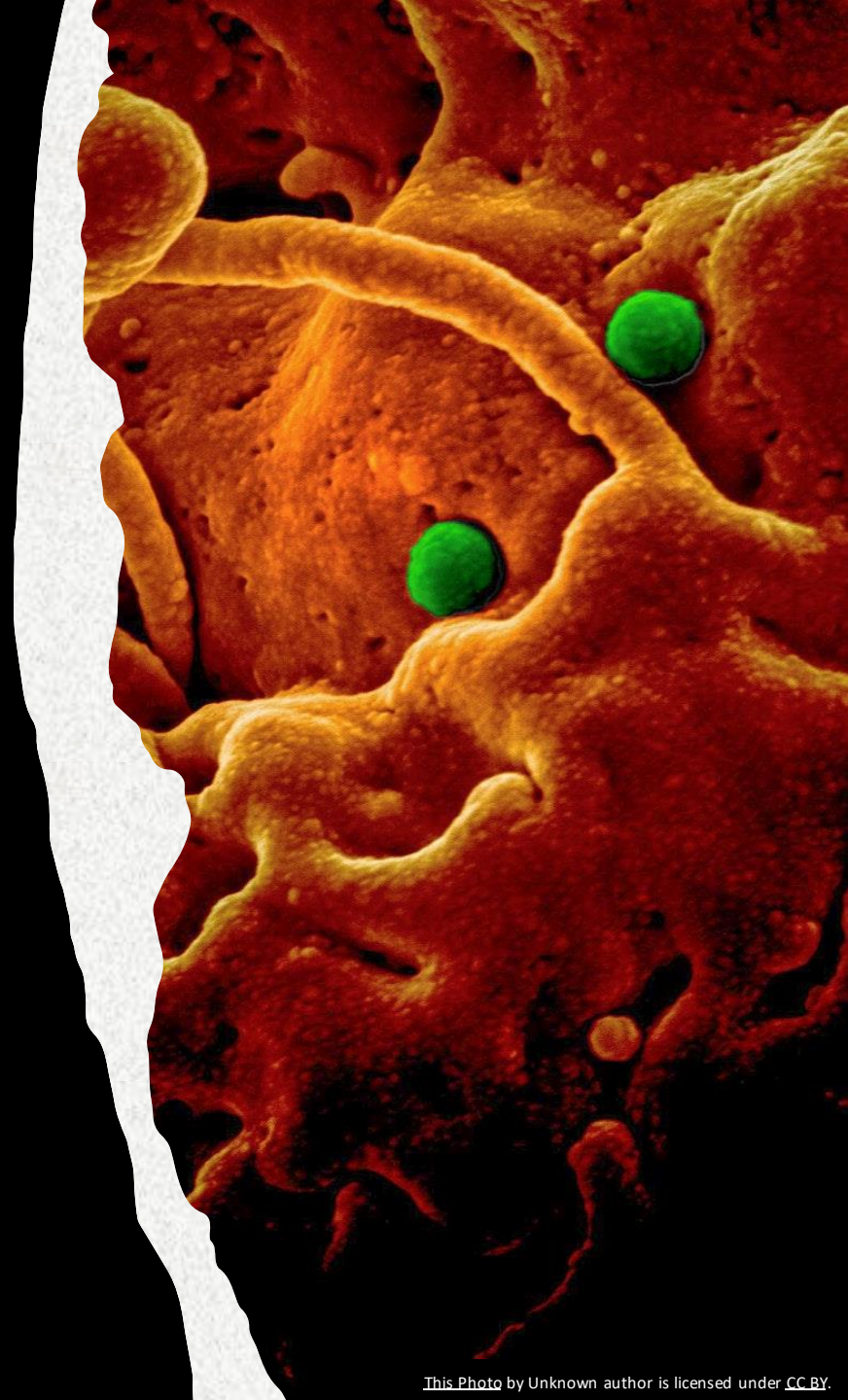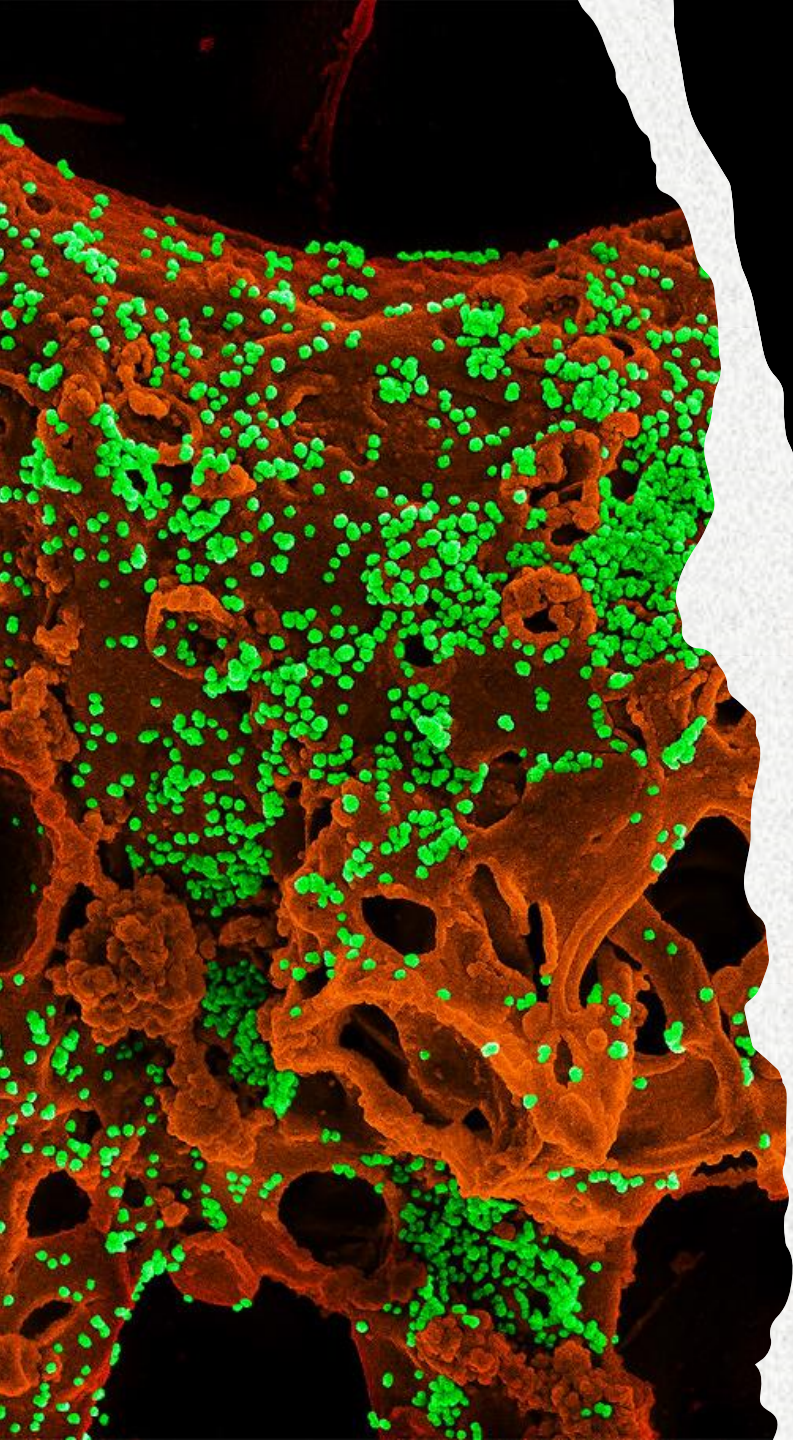# MERS

MERS Outbreaks

- Suadi Arabia

2046 Total number of cases

- South Korea

186 Total number of cases

MERS in Saudi Arabia

- Spread of the disease was not only due to person-to-person contacts

MERS Conflict

- The Basic Reproductive Number (R0)

Contact Network

- Contact information of Individuals in an emergency section of a hospital during 4 consecutive days

- Total number of People : 75

- Variety of individual's status : Patients, Doctors, Nurses, Nurses aids, and Administrative staffs

- Time interval of snapshots : 20 secs

Network Features

snapshot	Density	Nodes(ID)	Degree	PageRank
159820	0.0025	1159	1	0.13
74140	0.0011	1164	1	0.17
169440	0.0022	1210	1	0.08
338680	0.0014	1295	1	0.17
235860	0.0004	1485	1	0.50
331760	0.0029	1190	1	0.06
77840	0.0011	1245	1	0.17
97940	0.0014	1210	1	0.14
250980	0.0018	1164	1	0.11
205980	0.0011	1391	2	0.33

Contact Network

Density of Networks
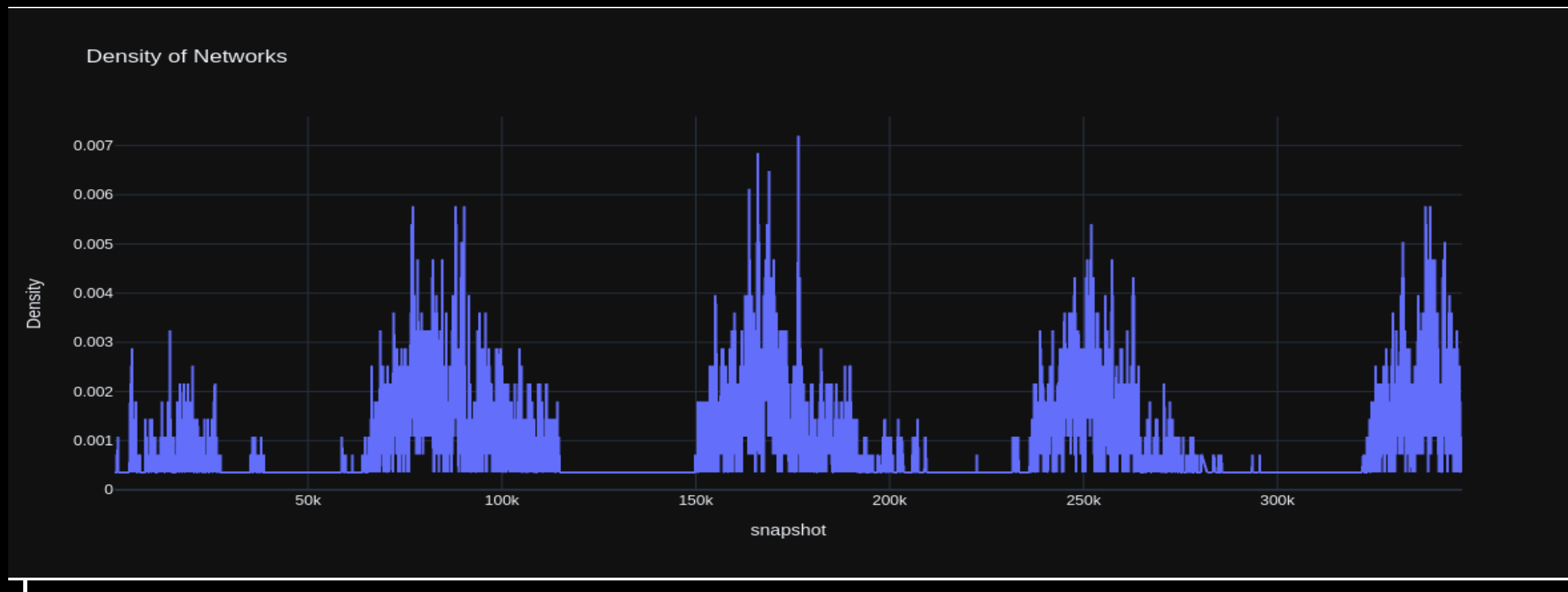
SIR Simulation

- Seed : Represents the ID of Individuals
- Selective seeds : Represent the individuals selected based on their characteristic features in the network
- Duration of recovery : 7 days on average
- Recovery rate : 0.000033 (per 20s)
- Transmissibility rate : 0.1

SIR Simulation

seed	status	total	max_prev
1115	NUR	66	26
1164	NUR	63	21
1365	PAT	63	18
1144	MED	62	19
1210	NUR	61	31
1193	NUR	58	21
1157	MED	55	21
1105	NUR	54	18
1295	NUR	54	18
1207	NUR	53	27
1109	NUR	39	22
1149	NUR	2	2
1148	MED	1	1
1629	NUR	1	1
1658	ADM	1	1

Prevalence
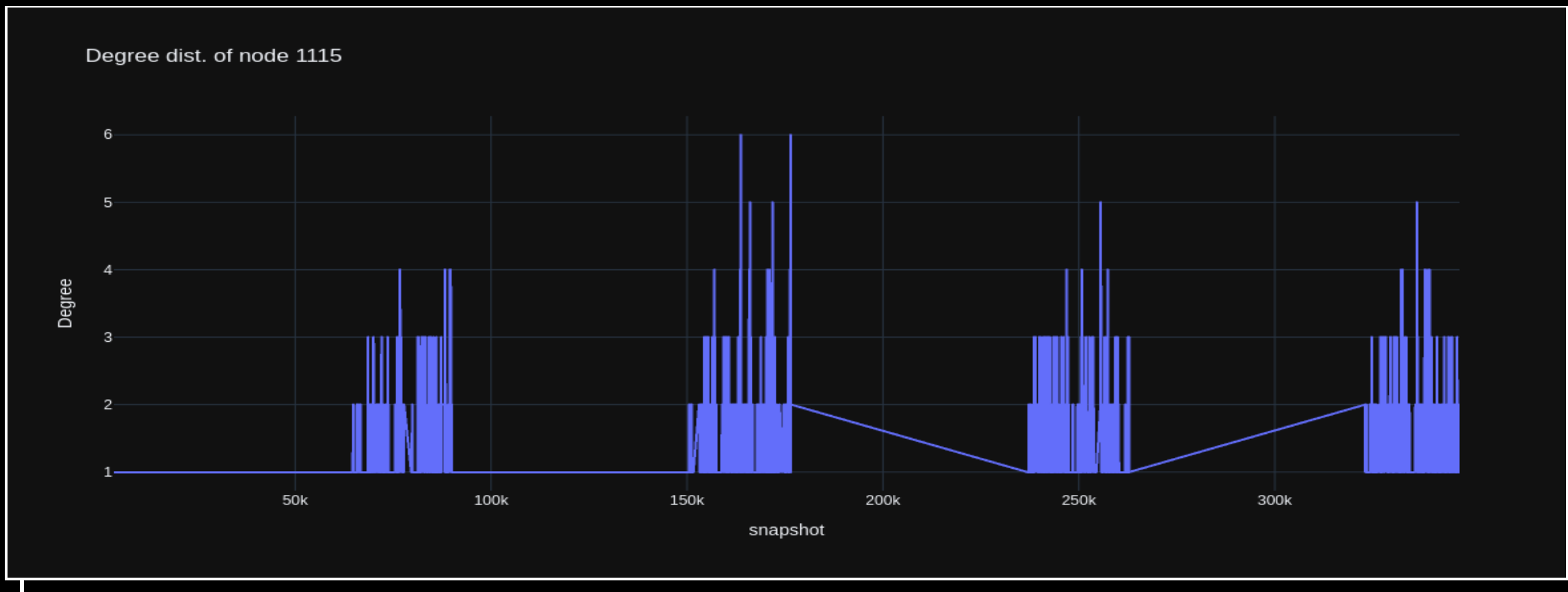
Network Features

Network Features
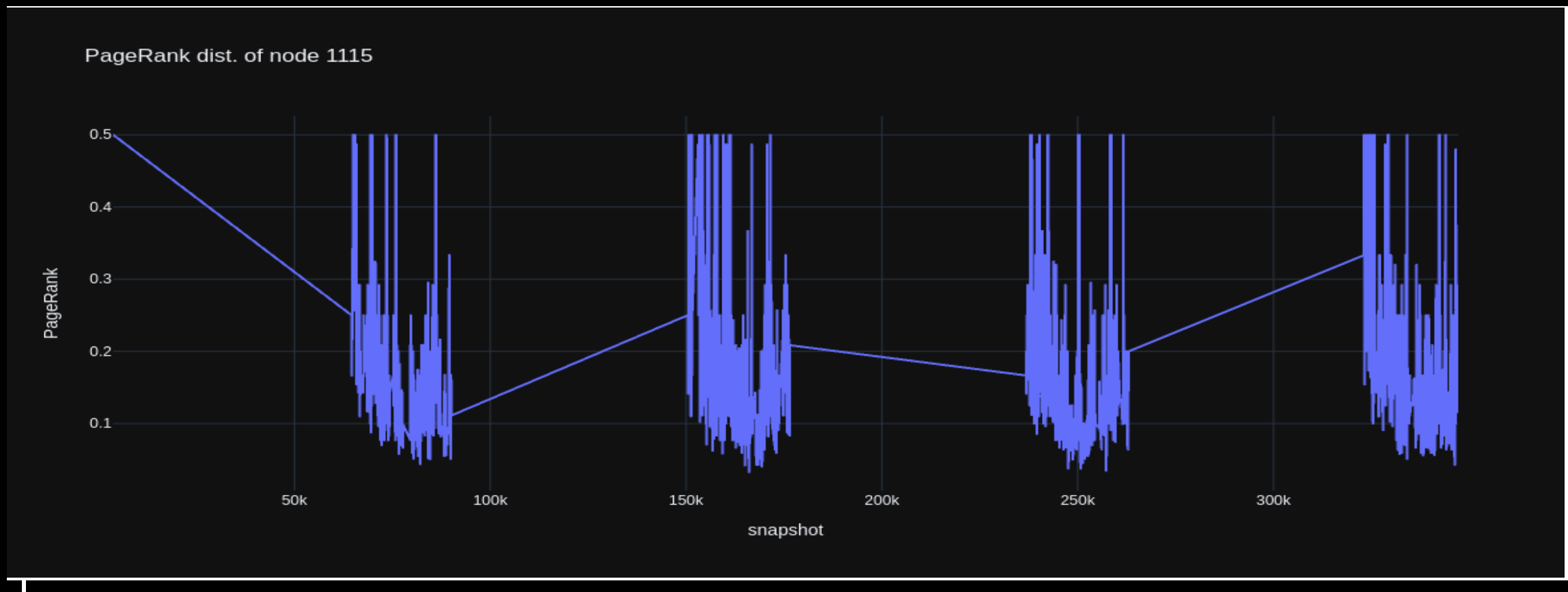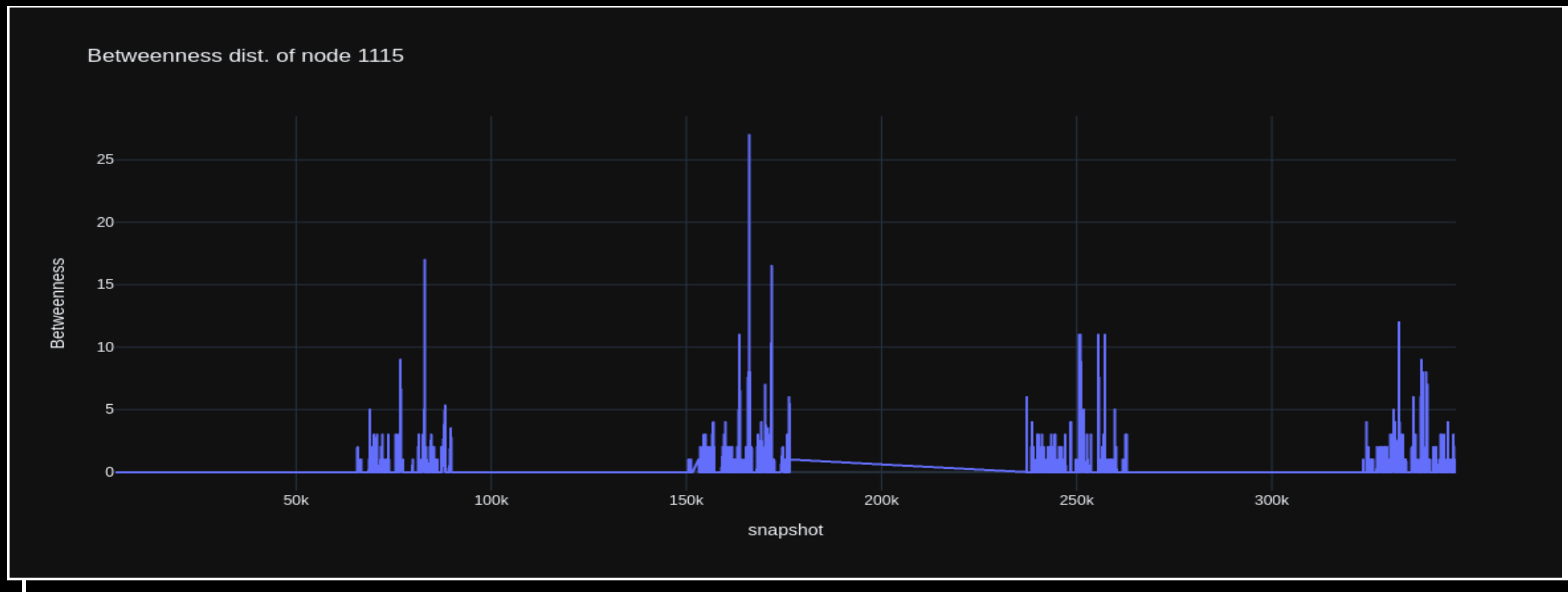
PageRank dist. of node 1115

Network Features

Betweenness dist. of node 1115

Fluctuations

Difference of Degree for ID:1115
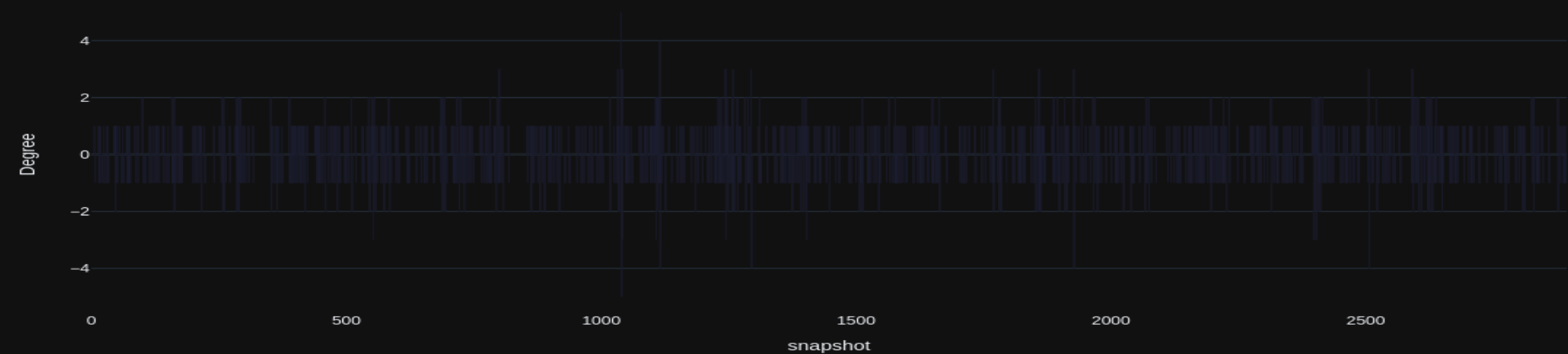
Difference of Degree for ID:1148
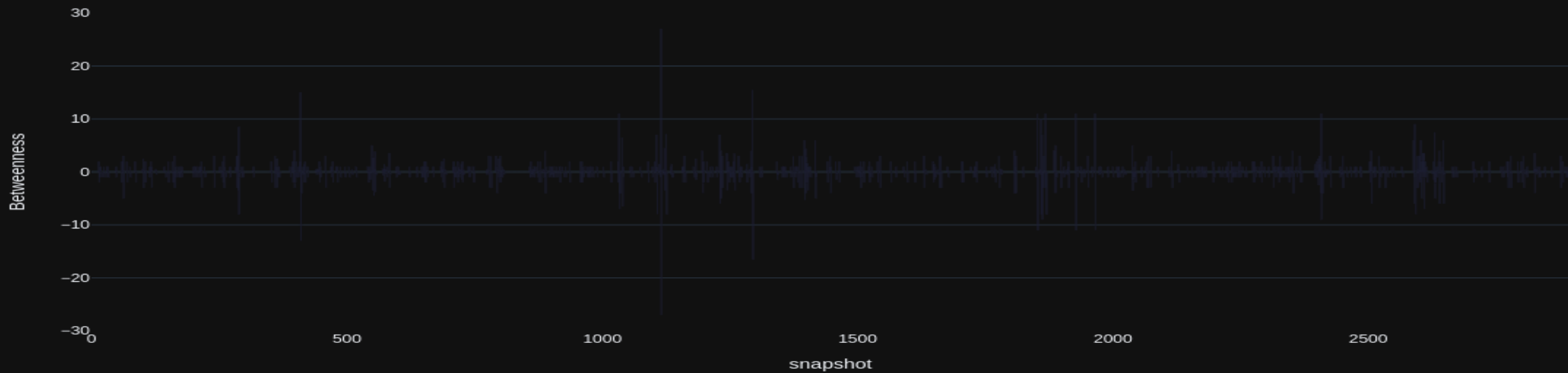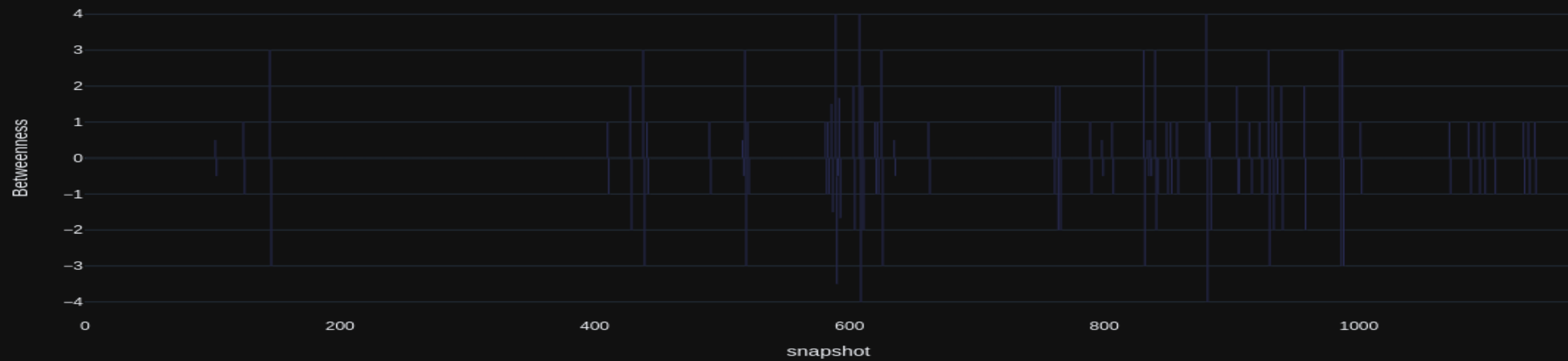
Difference of PageRank for ID:1115
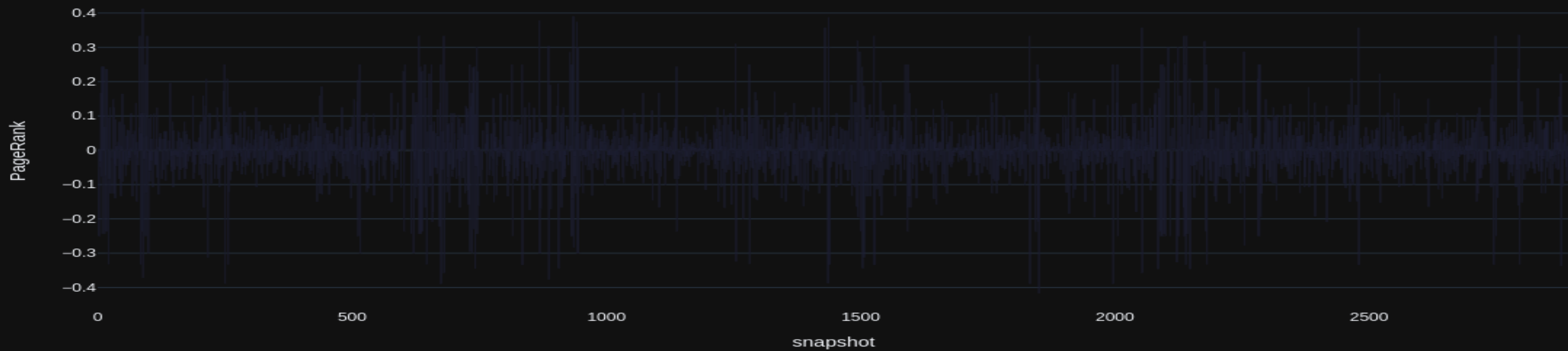
Difference of PageRank for ID:1148
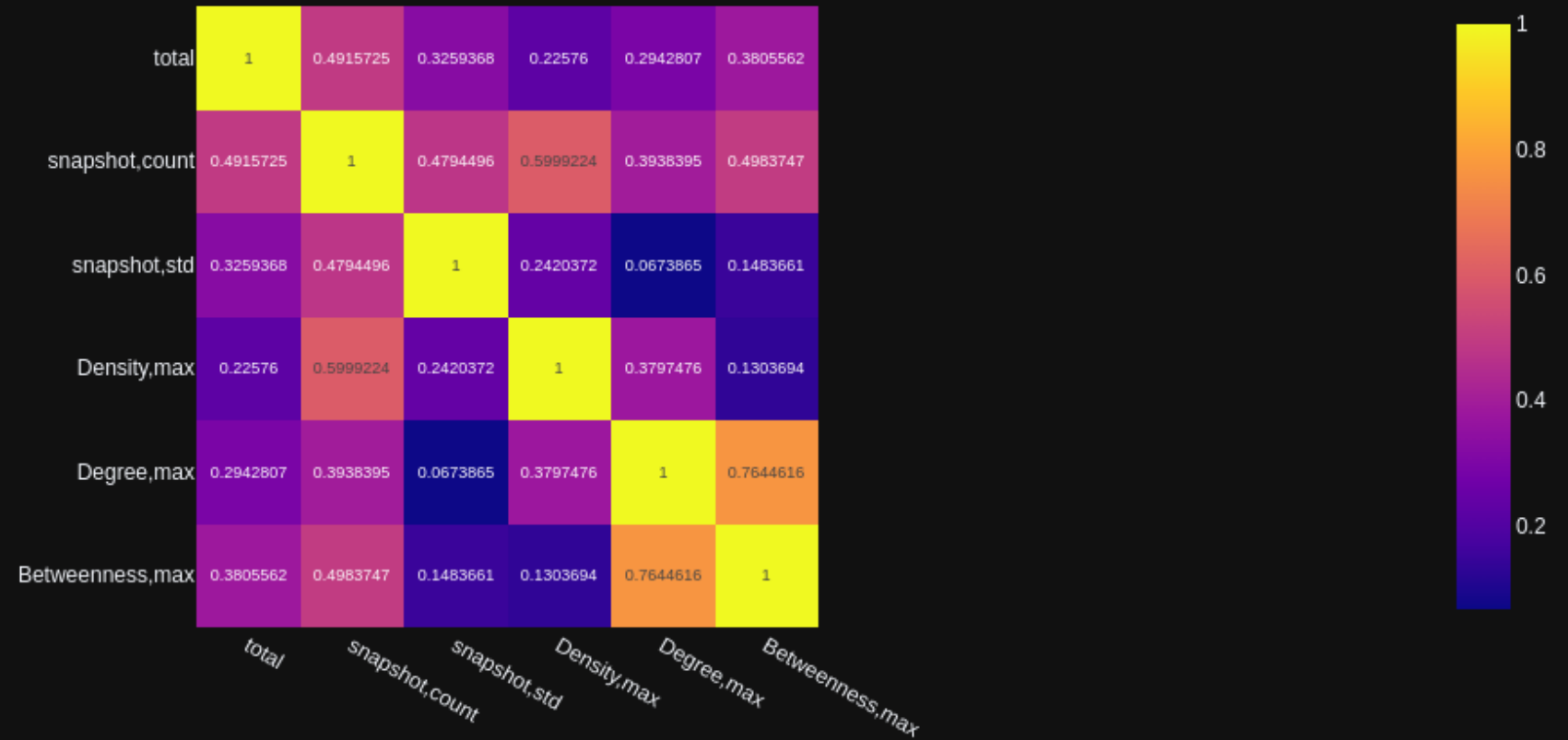
Difference of Betweenness for ID:1115

Difference of betweenness for ID:1148

Correlations

Correlation
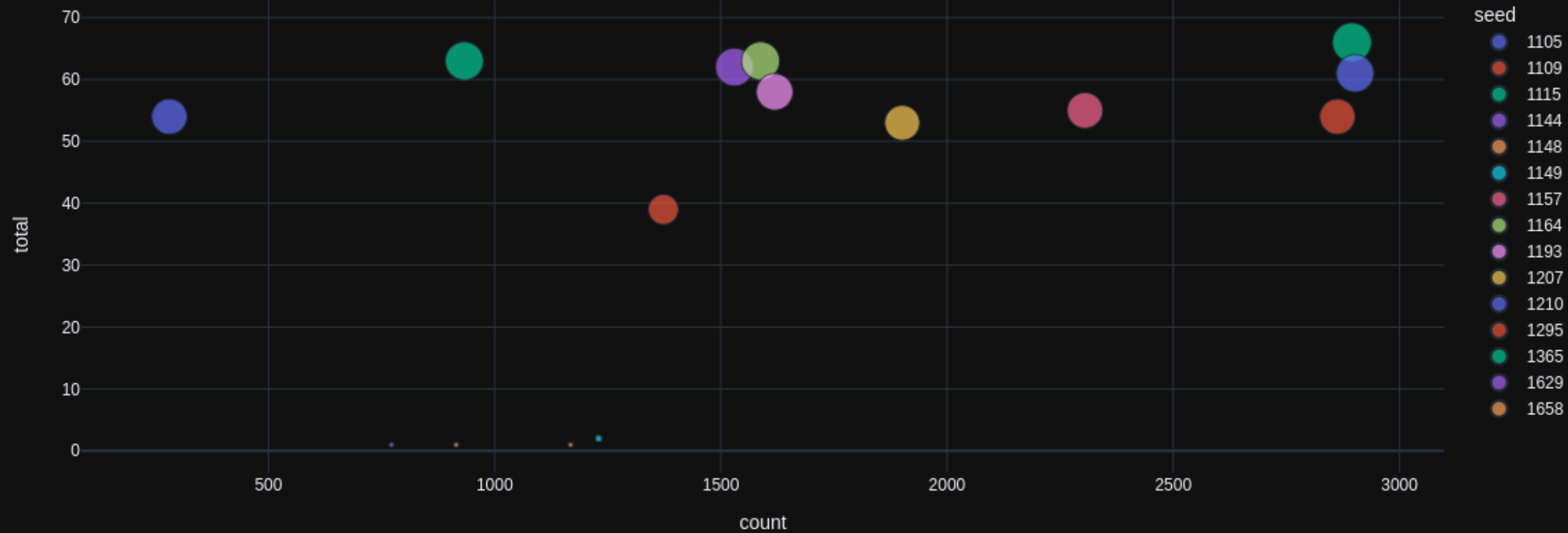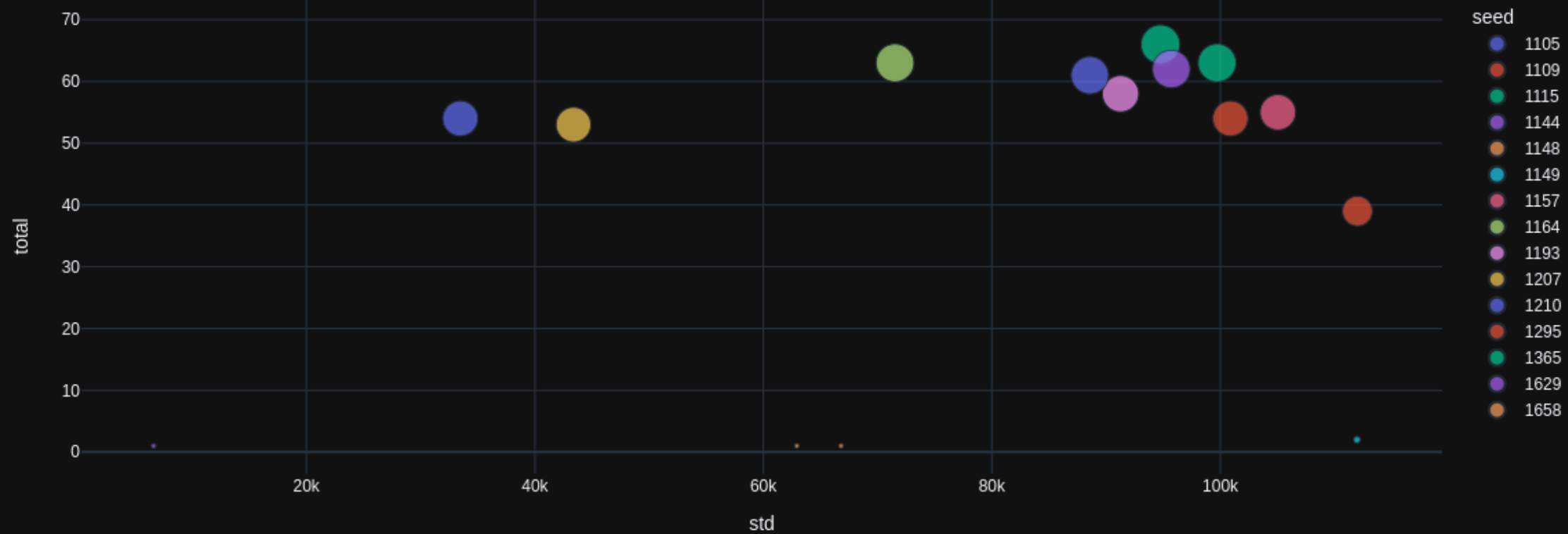
Node Activity

Node Activity

Density of the Network

Degree Dist.

Betweenness Dist.