



# Complex Networks

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# 1 Exercise 1

The information about the Power-Law graphs came from [here](#)

## 1.1 Power-Law Graph for all information

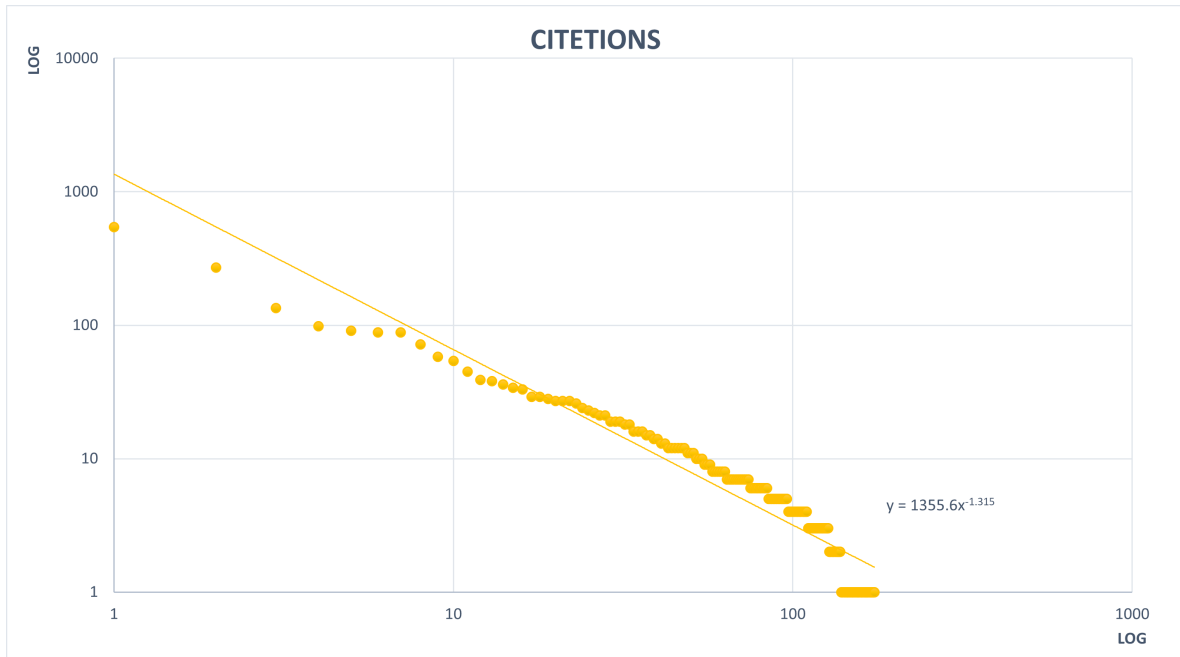


Figure 1:  $a = 1.315$ ,  $c = 1355$

## 1.2 Power-Law Graph for part of the information

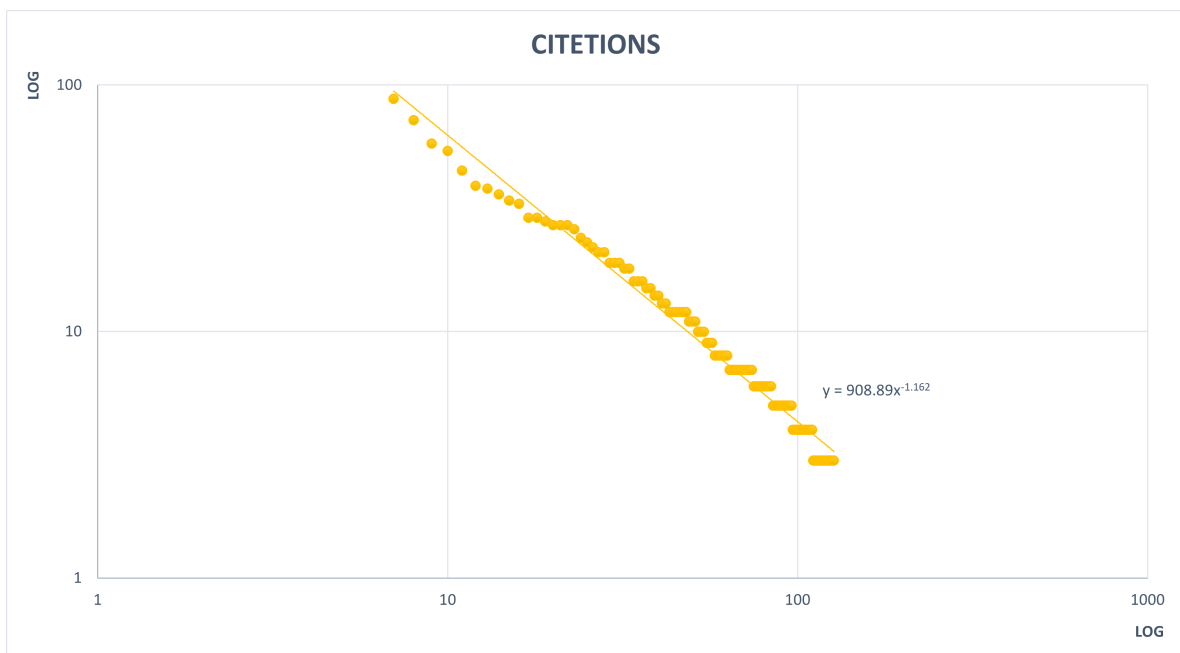


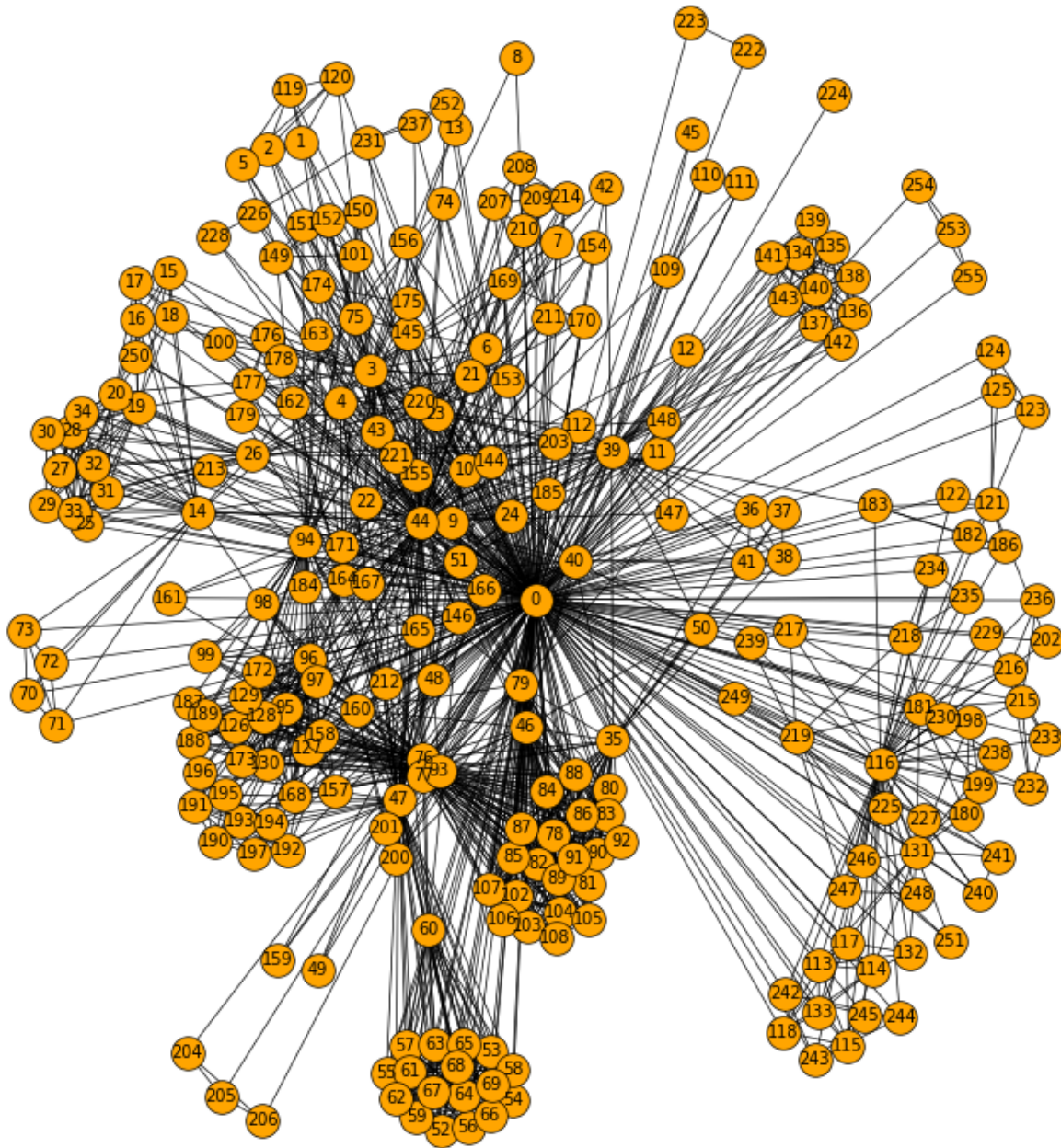
Figure 2:  $a = 1.162$ ,  $c = 908.89$

## 2 Exercise 2

### 2.1 Graph

The information about the graph came from [here](#)

Authors and Co-authors Graph



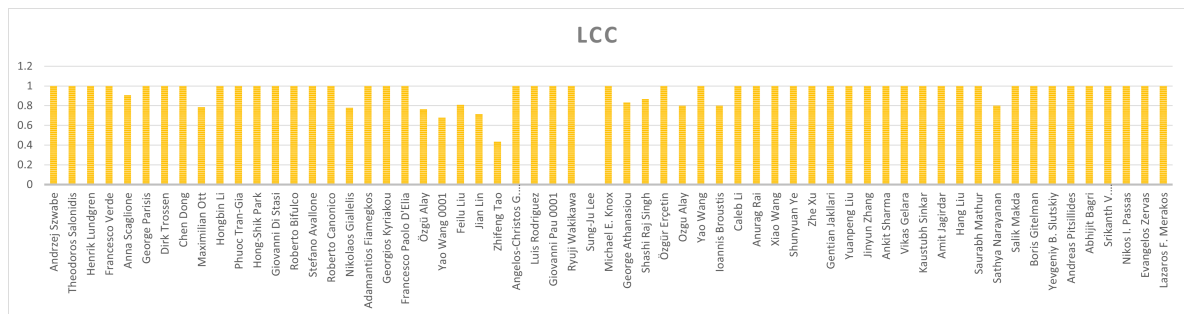
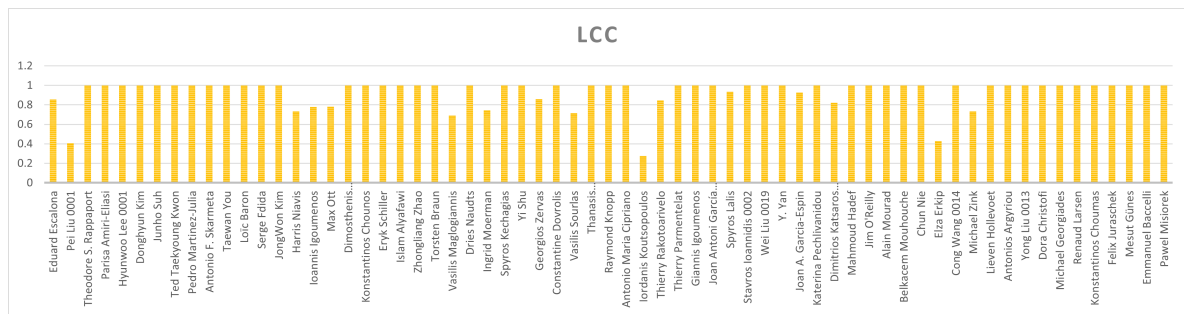
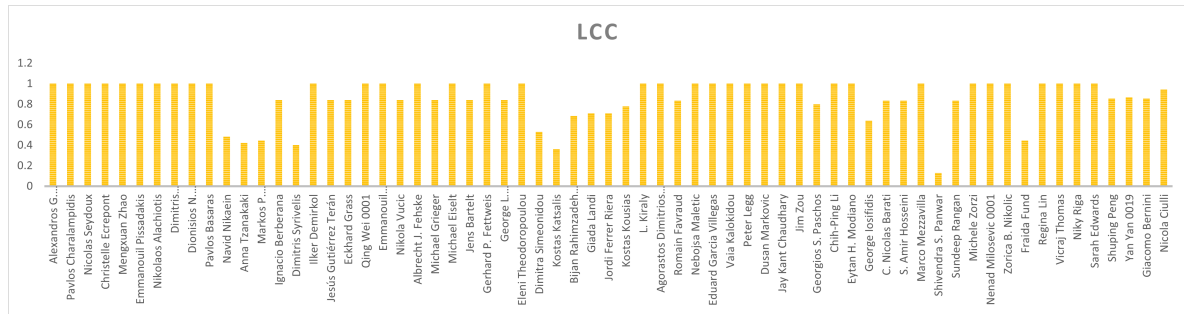
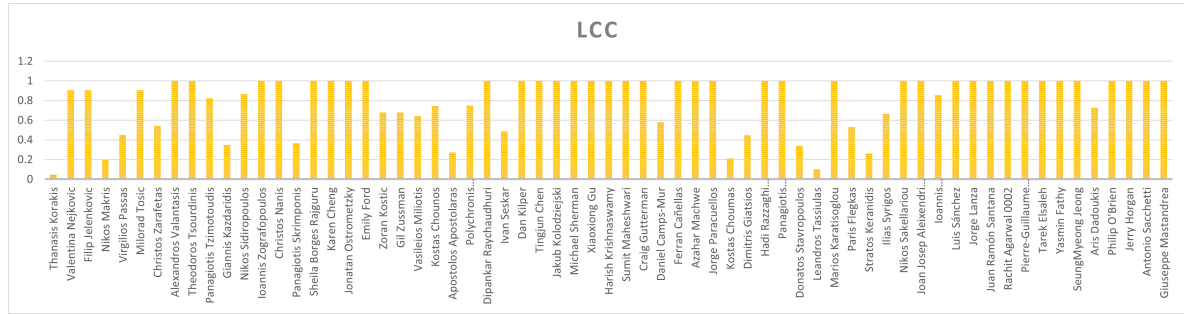


## 2.2 Node index and author's name

0	Thanasis Korakis	65	Alexandros G. Fragkiadakis	130	Eduard Escalona	197	Henrik Lundgren
1	Valentina Nejtkovic	66	Pavlos Charalampidis	131	Pei Liu 0001	198	Francesco Verde
2	Filip Jelenkovic	67	Nicolas Seydoux	132	Theodore S. Rappaport	199	Anna Scaglione
3	Nikos Makris	68	Christelle Ecrepont	133	Parisa Amiri-Elias	200	George Parisi
4	Virgilios Passas	69	Mengxuan Zhao	134	Hyunwoo Lee 0001	201	Dirk Trossen
5	Milorad Tosic	70	Emmanouil Pissadakis	135	Donghyun Kim	202	Chen Dong
6	Christos Zarafetas	71	Nikolaos Alachiotis	136	Junho Suh	203	Maximilian Ott
7	Alexandros Valantasis	72	Dimitris Theodoropoulos	137	Ted Taekyoung Kwon	204	Hongbin Li
8	Theodoros Tsourdinis	73	Dionisios N. Pnevmatikatos	138	Pedro Martinez-Julia	205	Phuoc Tran-Gia
9	Panagiotis Tzimotoudis	74	Pavlos Basaras	139	Antonio F. Skarmeta	206	Hong-Shik Park
10	Giannis Kazdaridis	75	Navid Nikaein	140	Taewan You	207	Giovanni Di Stasi
11	Nikos Sidiropoulos	76	Anna Tzanakaki	141	Loic Baron	208	Roberto Bifulco
12	Ioannis Zografopoulos	77	Markos P. Anastasopoulos	142	Serge Fdida	209	Stefano Avallone
13	Christos Nanis	78	Ignacio Berberana	143	JongWon Kim	210	Roberto Canonico
14	Panagiotis Skrimponis	79	Dimitris Syrivelis	144	Harris Niavis	211	Nikolaos Giallelis
15	Sheila Borges Rajguru	80	Ilker Demirkol	145	Ioannis Igoumenos	212	Adamantios Flamegkos
16	Karen Cheng	81	Jesús Gutiérrez Terán	146	Max Ott	213	Georgios Kyriakou
17	Jonatan Ostrometzky	82	Eckhard Grass	147	Dimosthenis Delimpasis	214	Francesco Paolo D'Elia
18	Emily Ford	83	Qing Wei 0001	148	Konstantinos Chounos	215	Özgü Alay
19	Zoran Kostic	84	Emmanouil Pateromichelak	149	Eryk Schiller	216	Yao Wang 0001
20	Gil Zussman	85	Nikola Vucic	150	Islam Alyfawi	217	Feilu Liu
21	Vasileios Miliotis	86	Albrecht J. Fehske	151	Zhongliang Zhao	218	Jian Lin
22	Kostas Chounos	87	Michael Grieger	152	Torsten Braun	219	Zhifeng Tao
23	Apostolos Apostolaras	88	Michael Eiselt	153	Vasilis Maglogiannis	220	Angelos-Christos G. Anad
24	Polychronis Symeonidis	89	Jens Bartelt	154	Dries Naudts	221	Luis Rodriguez
25	Dipankar Raychaudhuri	90	Gerhard P. Fettweis	155	Ingrid Moerman	222	Giovanni Pau 0001
26	Ivan Seskar	91	George L. Lyberopoulos	156	Spyros Kechagias	223	Ryuji Wakikawa
27	Dan Kilper	92	Eleni Theodoropoulou	157	Yi Shu	224	Sung-Ju Lee
28	Tingjun Chen	93	Dimitra Simeonidou	158	Georgios Zervas	225	Michael E. Knox
29	Jakub Kolodziejcki	94	Kostas Katsalis	159	Constantine Dovrolis	226	George Athanasiou
30	Michael Sherman	95	Bijan Rahimzadeh Rofe	160	Vasilis Sourlas	227	Shashi Raj Singh
31	Xiaoxiong Gu	96	Giada Landi	161	Thanasis Papapioannou	228	Özgür Erçetin
		97	Jordi Ferrer Riera	162	Raymond Knopp	229	Ozgu Alay
32	Harish Krishnaswamy	98	Kostas Kousias	163	Antonio Maria Cipriano	230	Yao Wang
33	Sumit Maheshwari	99	L. Kiraly	164	Iordanis Koutsopoulos	231	Ioannis Broustis
34	Craig Guterman	100	Agorastos Dimitrios Sama	165	Thierry Rakotoarivelo	232	Caleb Li
35	Daniel Camps-Mur	101	Romain Favraud	166	Thierry Parmentelat	233	Anurag Rai
36	Ferran Cañellas	102	Nebojsa Maletic	167	Giannis Igoumenos	234	Xiao Wang
37	Azahar Machwe	103	Eduard Garcia Villegas	168	Joan Antoni Garcia Espin	235	Shunyu Yan Ye
38	Jorge Paracuellos	104	Vaia Kalokidou	169	Spyros Lalis	236	Zhe Xu
39	Kostas Choumas	105	Peter Legg	170	Stavros Ioannidis 0002	237	Gentian Jakllari
40	Dimitris Giatsios	106	Dusan Markovic	171	Wei Liu 0019	238	Yuanpeng Liu
41	Hadi Razzaghi Kouchaksarae	107	Jay Kant Chaudhary	172	Y. Yan	239	Jinyun Zhang
42	Panagiotis Karamichailidis	108	Jim Zou	173	Joan A. Garcia-Espin	240	Ankit Sharma
43	Donatos Stavropoulos	109	Georgios S. Paschos	174	Katerina Pechlivanidou	241	Vikas Gelara
44	Leandros Tassioulas	110	Chih-Ping Li	175	Dimitrios Katsaros 0001	242	Kaustubh Sinkar
45	Marios Karatisoglou	111	Eytan H. Modiano	176	Mahmoud Hadeef	243	Amit Jagirdar
46	Paris Flegkas	112	George Iosifidis	177	Jim O'Reilly	244	Hang Liu
47	Stratos Keranidis	113	C. Nicolas Barati	178	Alain Mourad	245	Saurabh Mathur
48	Ilias Syrigos	114	S. Amir Hosseini	179	Belkacem Mouhouche	246	Sathya Narayanan
49	Nikos Sakellariou	115	Marco Mezzavilla	180	Chun Nie	247	Salik Makda
50	Joan Josep Aleixendri Cruel	116	Shivendra S. Panwar	181	Elza Erkip	248	Boris Gitelman
51	Ioannis Zographopoulos	117	Sundeep Rangan	182	Cong Wang 0014	249	Yevgeniy B. Slutskiy
52	Luis Sánchez	118	Michele Zorzi	183	Michael Zink	250	Andreas Pitsillides
53	Jorge Lanza	119	Nenad Milosevic 0001	184	Lieven Hollevoet	251	Abhijit Bagri
54	Juan Ramón Santana	120	Zorica B. Nikolic	185	Antonios Argyriou	252	Srikanth V. Krishnar
55	Rachit Agarwal 0002	121	Fraida Fund	186	Yong Liu 0013	253	Nikos I. Passas
56	Pierre-Guillaume Raverdy	122	Regina Lin	187	Dora Christofi	254	Evangelos Zervas
57	Tarek Elsaie	123	Vicraj Thomas	188	Michael Georgiades	255	Lazaros F. Merakos
58	Yasmin Fathy	124	Niky Riga	189	Renaud Larsen		
59	SeungMyeong Jeong	125	Sarah Edwards	190	Konstantinos Choumas		
60	Aris Dadoukis	126	Shuping Peng	191	Felix Juraschek		
61	Philip O'Brien	127	Yan Yan 0019	192	Mesut Günes		
62	Jerry Horgan	128	Giacomo Bernini	193	Emmanuel Baccelli		
63	Antonio Sacchetti	129	Nicola Ciulli	194	Pawel Misiorek		
64	Giuseppe Mastandrea			195	Andrzej Szwabe		
				196	Theodoros Salonidis		

## 2.3 LCC

The Local Clustering Coefficient of each professor can be seen in the images below.



## 2.4 CC

The Clustering coefficient is equal to the average Local Clustering coefficient which is:  $CC = 0.88321$ .

## 2.5 Characteristic Path Length

The Characteristic Shortest Path of the graph is equal to 1.9483.