Publication Report

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1 Introduction

This report is a companion document to the main report generated for the extracted information used in the survey of CP and Scheduling. This document is concerned with some of the summary statistics, and with data quality issues that nre highlighted for correction by the authors.

2 Data Quality

This section gives an overall overview of the works covered by the survey. We first look at all works, and consider which entries cannot be full analyzed. We consider the following status outcomes: no DOI, the bib entry does not give a DOI, this typically means that we cannot find the citation and reference counts for the work. A special case is the Thesis type, which typically do not have a DOI assigned by the university. Even entries with a DOI may not be covered, we distinguish entries that are covered by neither Crossref nor Scopus, or entries which are covered by one, but not the other. The OK status indicates that we can find the entry in all our sources.

Note that OpenCitations does not distinguish between a DOI that is not covered, and a DOI for which there are no references or citations. In both cases, an empty list is returned by the query.

We may be able to repair some of the entries by finding a DOI for entries which miss them, or by correcting a mistake in a DOI, where neither Crossref nor Scopus recognizes the entry. Note that the system responses are cached, and missing entries are not repeatedly queried by the system. This means that additions or corrections in the databases that occur after we first queried them for a specific entry are not automatically taken into account. It may be good practice to re-run all queries from time to time to reflect updates in the databases.

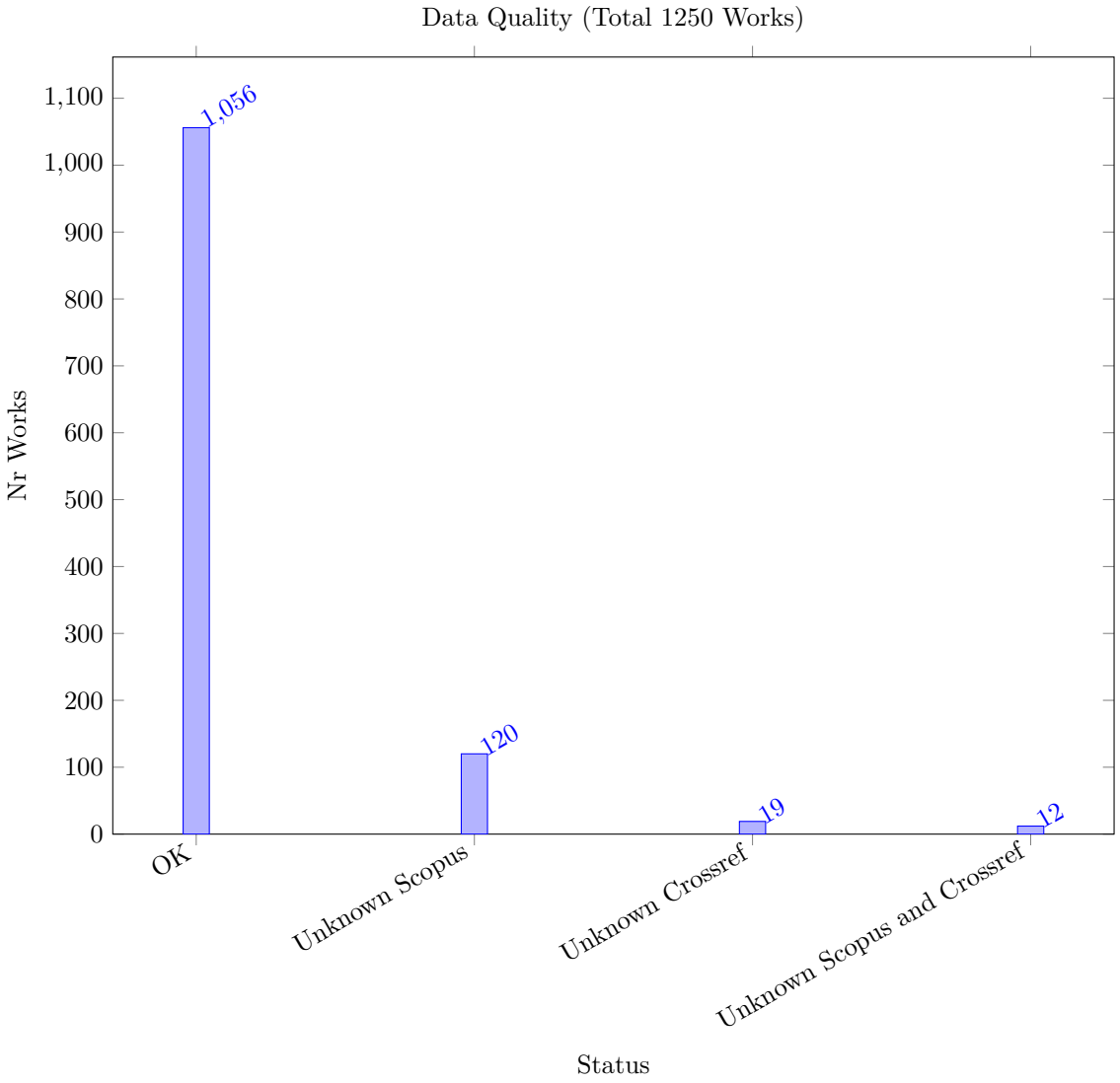

Data Quality (Total 1250 Works)
Nr Works
1,100
1,000
900
800
700
600
500
400
300
200
100
0
1,056
120
19
12
OK
Unknown Scopus
Unknown Crossref
Unknown Scopus and Crossref
Status

Table 1: Works Unknown to Crossref and Scopus

Key	DOI	Source Group	Year	Nr Citations	Crossref Citations	Scopus Citations	WoS Citations	Range Citations	Range Percentage
abs-2402-00459	10.48550/arxiv.2402.00459	Preprint	2024	0	0	0	null	0	NaN
abs-2305-19888	10.48550/arxiv.2305.19888	Preprint	2023	0	0	0	null	0	NaN
abs-2306-05747	10.48550/arxiv.2306.05747	Preprint	2023	0	0	0	null	0	NaN
abs-2312-13682	10.48550/arxiv.2312.13682	Preprint	2023	0	0	0	null	0	NaN
GokPTGO23	10.1007/s10479-022-04547-	ORJournal	2023	0	0	0	null	0	NaN
abs-2211-14492	10.48550/arxiv.2211.14492	Preprint	2022	0	0	0	null	0	NaN
OrnekOS20	10.1007/s12351-020-00563-	ORJournal	2022	0	0	0	null	0	NaN
OrnekO16	10.23055/ijietap.2016.23.1.1930	OtherJournal	2016	0	0	0	null	0	NaN
OddiRCS11	10.5591/978-1-57735-516-8/ijcai11-332	IJCAI	2011	0	0	0	null	0	NaN
AronssonBK09	10.4230/oasics.atmos.2009.2141	OtherConf	2009	0	0	0	null	0	NaN
KanetAG04	10.1201/9780203489802.ch47	Incoll	2004	0	0	0	null	0	NaN
BeckF98	10.1609/aimag.v19i4.1426	AIJournal	1998	0	0	0	null	0	NaN

Table 2: Works Unknown to Crossref

Key	DOI	Source Group	Year	Nr Citations	Crossref Citations	Scopus Citations	WoS Citations	Range Citations	Range Percentage
JuvinHHL23	10.4230/lipics.cp.2023.19	CP	2023	0	0	0	null	0	NaN
PovedaAA23	10.4230/lipics.cp.2023.31	CP	2023	0	0	0	null	0	NaN
AalianPG23	10.4230/lipics.cp.2023.6	CP	2023	0	0	0	null	0	NaN
KameugneFND23	10.4230/lipics.cp.2023.20	CP	2023	0	0	0	null	0	NaN
BoudreaultSLQ22	10.4230/lipics.cp.2022.10	CP	2022	0	0	0	null	0	NaN
PopovicCGNC22	10.4230/lipics.cp.2022.34	CP	2022	0	0	0	null	0	NaN
WinterMMW22	10.4230/lipics.cp.2022.41	CP	2022	0	0	0	null	0	NaN
ArmstrongGOS21	10.4230/lipics.cp.2021.16	CP	2021	1	0	1	null	1	100.00
AntuoriHHEN21	10.4230/lipics.cp.2021.14	CP	2021	0	0	1	null	1	100.00
KovacsTKSG21	10.4230/lipics.cp.2021.36	CP	2021	0	0	4	null	4	100.00
LacknerMMWW21	10.4230/lipics.cp.2021.37	CP	2021	0	0	3	null	3	100.00
WangB20	10.3233/faia200114	ECAI	2020	0	0	0	null	0	NaN
BarzegaranZP20	10.4230/oasics.fog-iot.2020.3	OtherConf	2020	0	0	0	null	0	NaN
BridiLBBM16	10.3233/978-1-61499-672-9-1598	ECAI	2016	0	0	0	null	0	NaN
BartakV15	10.5220/0005215701190130	OtherConf	2015	0	0	1	null	1	100.00
TranB12	10.3233/978-1-61499-098-7-774	ECAI	2012	0	0	30	null	30	100.00
PacinoH11	10.5591/978-1-57735-516-8/ijcai11-333	IJCAI	2011	0	0	0	null	0	NaN
OddiRC10	10.3233/978-1-60750-606-5-967	ECAI	2010	0	0	2	null	2	100.00
Hunsberger08	10.3233/978-1-58603-891-5-553	ECAI	2008	0	0	1	null	1	100.00

Table 3: Works Unknown to Scopus

Key	DOI	Source Group	Year	Nr Citations	Crossref Citations	Scopus Citations	WoS Citations	Range Citations	Range Percentage
Caballero23	10.1007/s10601-023-09357-0	Constraints	2023	0	0	0	null	0	NaN
NaderiBZ23	10.2139/ssrn.4494381	Preprint	2023	0	0	0	null	0	NaN
GunerGSKD23	10.1080/00207543.2023.2226772	OtherJournal	2023	0	3	0	null	3	100.00

Key	DOI	Source Group	Year	Nr Citations	Crossref Citations	Scopus Citations	WoS Citations	Range Citations	Range Percentage
IklassovMR023	10.24963/ijcai.2023/594	IJCAI	2023	0	0	0	null	0	NaN
Lyons2023	10.3390/analytics2030036	OtherJournal	2023	0	0	0	null	0	NaN
Bley2023	10.1007/978-3-031-24907-5_68	Inbook	2023	0	0	0	null	0	NaN
Akan2023	10.33714/masteb.1324266	OtherJournal	2023	0	0	0	null	0	NaN
Abreu2023	10.1007/978-3-031-36121-0_9	Inbook	2023	0	0	0	null	0	NaN
HebrardALLCMR22	10.24963/ijcai.2022/643	IJCAI	2022	0	0	0	null	0	NaN
NaderiBZ22	10.2139/ssrn.4140716	Preprint	2022	0	0	0	null	0	NaN
JuvinHL22	10.2139/ssrn.4068164	Preprint	2022	0	0	0	null	0	NaN
NaderiR22	10.1287/ijoo.2021.0056	ORJournal	2022	5	7	0	null	7	100.00
KotaryFH22	10.1609/aaai.v36i7.20685	AAAI	2022	0	2	0	null	2	100.00
Ouellet2022	10.1609/aaai.v36i4.20296	OtherJournal	2022	1	0	0	null	1	100.00
QinWSLS21	10.1109/tase.2019.2947398	OtherJournal	2021	12	19	0	null	19	100.00
GeibingerMM21	10.1609/aaai.v35i7.16789	AAAI	2021	0	1	0	null	1	100.00
KletzanderMH21	10.1609/aaai.v35i13.17408	AAAI	2021	2	2	0	null	2	100.00
Pinarbasi21	10.1080/0305215x.2021.1921171	OtherJournal	2021	3	6	0	null	6	100.00
Strak2021	10.5937/tehnika2102239s	OtherJournal	2021	0	0	0	null	0	NaN
Eiter2021	10.24963/kr.2021/27	OtherConf	2021	6	7	0	null	7	100.00
GodetLHS20	10.1609/aaai.v34i02.5510	AAAI	2020	1	1	0	null	1	100.00
FallahiAC20	10.1504/ijams.2020.10026882	OtherJournal	2020	0	0	0	null	0	NaN
AbidinK20	10.1016/j.cor.2020.105069	ORJournal	2020	11	14	0	null	14	100.00
Danzinger2020	10.1609/icaps.v30i1.6681	OtherJournal	2020	1	2	0	null	2	100.00
NishikawaSTT19	10.15803/ijnc.9.2_131	OtherJournal	2019	3	3	0	null	3	100.00
BlazewiczEP19	10.1007/978-3-319-99849-7	Incoll	2019	38	38	0	null	38	100.00
PinarbasiAY19	10.1108/aa-12-2018-0262	OtherJournal	2019	16	18	0	null	18	100.00
AlakaPY19	10.1007/s00500-019-04294-8	OtherJournal	2019	15	17	0	null	17	100.00
PachecoPR19	10.24963/ijcai.2019/161	IJCAI	2019	1	1	0	null	1	100.00
BhatnagarKL19	10.24963/ijcai.2019/803	IJCAI	2019	1	1	0	null	1	100.00
RiahiNS018	10.1609/icaps.v28i1.13895	ICAPS	2018	4	4	0	null	4	100.00
AgussurjaKL18	10.1609/aaai.v32i1.12086	AAAI	2018	4	4	0	null	4	100.00
TranVNB17a	10.24963/ijcai.2017/726	IJCAI	2017	1	1	0	null	1	100.00
Laborie2017	10.1609/icaps.v27i1.13844	OtherJournal	2017	2	2	0	null	2	100.00
Gonzlez2017	10.1609/icaps.v27i1.13809	OtherJournal	2017	10	12	0	null	12	100.00
Bonfietti16	10.3233/ia-160095	AIJournal	2016	0	0	0	null	0	NaN
TranDRFWOVB16	10.1609/socs.v7i1.18390	OtherConf	2016	3	9	0	null	9	100.00
FrankDT16	10.1609/icaps.v26i1.13780	ICAPS	2016	4	5	0	null	5	100.00
KinsellaS0OS16	10.1609/aaai.v30i2.19079	AAAI	2016	1	2	0	null	2	100.00
Abdul-Niby2016	10.48084/etasr.627	OtherJournal	2016	3	4	0	null	4	100.00
Siala15	10.1007/s10601-015-9213-y	Constraints	2015	4	3	0	null	4	100.00
Kameugne15	10.1007/s10601-015-9227-5	Constraints	2015	0	0	0	null	0	NaN
LimBTBB15a	10.1609/aaai.v29i1.9236	AAAI	2015	3	3	0	null	3	100.00
Oliveira2015	10.14807/ijmp.v6i1.262	OtherJournal	2015	2	1	0	null	2	100.00
Bzdyra2015	10.4028/www.scientific.net/amm.791.70	OtherJournal	2015	5	5	0	null	5	100.00
FriedrichFMRSST14	10.1007/978-3-319-28697-6_23	OtherConf	2014	3	3	0	null	3	100.00
LipovetzkyBPS14	10.1609/icaps.v24i1.13666	ICAPS	2014	5	5	0	null	5	100.00
LudwigKRBMS14	10.1609/aaai.v28i2.19030	AAAI	2014	1	1	0	null	1	100.00
ChunS14	10.1609/aaai.v28i2.19013	AAAI	2014	3	3	0	null	3	100.00
Silva2014	10.1590/2238-1031.jtl.v8n4a9	OtherJournal	2014	2	2	0	null	2	100.00
Levine2014	10.1609/icaps.v24i1.13672	OtherJournal	2014	17	20	0	null	20	100.00
Lozano2014	10.1145/2666357.2597815	OtherJournal	2014	3	2	0	null	3	100.00
Banaszak2014	10.1515/fman-2015-0014	OtherJournal	2014	8	8	0	null	8	100.00
BonfiettiLM13	10.1609/icaps.v23i1.13608	ICAPS	2013	1	1	0	null	1	100.00
LombardiM13	10.1609/icaps.v23i1.13580	ICAPS	2013	3	0	0	null	3	100.00
TranTDB13	10.1609/icaps.v23i1.13552	ICAPS	2013	2	2	0	null	2	100.00

Key	DOI	Source Group	Year	Nr Citations	Crossref Citations	Scopus Citations	WoS Citations	Range Citations	Range Percentage
MalapertCGJLR13	10.1609/icaps.v23i1.13575	ICAPS	2013	0	0	0	null	0	NaN
Zoulfaghari2013	10.4018/jaec.2013040103	OtherJournal	2013	5	5	0	null	5	100.00
Guimarans2013	10.4018/978-1-4666-2461-0.ch007	Inbook	2013	1	1	0	null	1	100.00
Janosikova2013	10.26552/com.c.2013.1.39-43	OtherJournal	2013	0	0	0	null	0	NaN
Kelareva2012	10.1609/icaps.v22i1.13494	OtherJournal	2012	11	14	0	null	14	100.00
BajestaniB11	10.1609/icaps.v21i1.13450	ICAPS	2011	2	2	0	null	2	100.00
Milano11	10.1002/9780470400531.eorms0473	Inbook	2011	0	0	0	null	0	NaN
Lizarralde2011	10.3917/proj.007.0089	OtherJournal	2011	1	1	0	null	1	100.00
Laborie2011	10.1007/978-3-642-23592-4_6	Inbook	2011	2	2	0	null	2	100.00
Baptiste09	10.1007/978-3-642-04244-7_1	CP	2009	0	0	0	null	0	NaN
MonetteDH09	10.1609/icaps.v19i1.13356	ICAPS	2009	9	10	0	null	10	100.00
Lorterapong2009	10.4203/ccp.74.8	OtherConf	2009	2	2	0	null	2	100.00
MercierH08	10.1287/ijoc.1070.0226	InformsJC	2008	32	33	0	null	33	100.00
AggounMV08	10.1007/978-0-387-74759-0_396	Inbook	2008	0	0	0	null	0	NaN
Terashima-Marn2008a	10.1007/978-3-540-88636-5_39	Inbook	2008	5	5	0	null	5	100.00
Banaszak2008	10.7494/dmms.2008.2.2.5	OtherJournal	2008	4	4	0	null	4	100.00
Limtanyakul07	10.1007/978-3-540-77903-2_65	OtherConf	2007	2	2	0	null	2	100.00
2007	10.1007/978-3-540-32220-7_13	Inbook	2007	0	0	0	null	0	NaN
NeronABCDD06	10.1007/978-0-387-33768-5_7	Inbook	2006	3	3	0	null	3	100.00
RussellU06	10.1016/j.cor.2004.09.029	ORJournal	2006	22	22	0	null	22	100.00
Trilling2006	10.3182/20060517-3-fr-2903.00340	OtherJournal	2006	25	25	0	null	25	100.00
OddiPCC05	10.1007/0-387-27744-7_7	OtherConf	2005	3	3	0	null	3	100.00
Bartak2005	10.4018/978-1-59140-450-7.ch010	Inbook	2005	3	3	0	null	3	100.00
Vazacopoulos2005	10.1007/0-387-26281-4_12	Inbook	2005	3	3	0	null	3	100.00
Zhang2005	10.1109/icmlc.2004.1380769	OtherConf	2005	1	0	0	null	1	100.00
DannaP04	10.1007/978-1-4419-8917-8_2	Inbook	2004	2	2	0	null	2	100.00
AjiliW04	10.1007/978-1-4419-8917-8_6	Inbook	2004	4	4	0	null	4	100.00
AggounV04	10.1007/978-3-540-24734-0_15	Inbook	2004	7	7	0	null	7	100.00
HenzMT04	10.1016/s0377-2217(03)00101-2	EJOR	2004	44	47	0	null	47	100.00
Tsang03	10.1023/a:1024016929283	OtherJournal	2003	1	0	0	null	1	100.00
DomdorfPH03	10.1007/978-3-642-18965-4_31	Inbook	2003	0	0	0	null	0	NaN
Apt03	10.1017/cbo9780511615320	Background	2003	381	374	0	null	381	100.00
Sadykov2003	10.2139/ssrn.988640	Preprint	2003	3	3	0	null	3	100.00
Timpe2003	10.1007/978-3-662-05607-3_5	Inbook	2003	2	2	0	null	2	100.00
ElkhyariGJ02	10.1007/3-540-46135-3_49	CP	2002	1	1	0	null	1	100.00
ZhuS02	10.1007/3-540-47961-9_69	OtherConf	2002	0	0	0	null	0	NaN
MilanoORT02	10.1287/ijoc.14.4.387.2830	InformsJC	2002	14	14	0	null	14	100.00
Hooker02	10.1287/ijoc.14.4.295.2828	InformsJC	2002	94	93	0	null	94	100.00
Hentenryck02	10.1287/ijoc.14.4.345.2826	Background	2002	48	50	0	null	50	100.00
EastonNT02	10.1007/978-3-540-45157-0_6	OtherConf	2002	48	50	0	null	50	100.00
Varnier2002	10.1109/icsmc.1996.561432	OtherConf	2002	0	0	0	null	0	NaN
Richard2002	10.1109/etfa.1995.496763	OtherConf	2002	4	4	0	null	4	100.00
Petith2002	10.1109/etfa.1995.496657	OtherConf	2002	0	0	0	null	0	NaN
BaptistePN01	10.1007/978-1-4615-1479-4	Book	2001	296	302	0	null	302	100.00
BosiM2001	10.1002/1097-024x(200101)31:1<17::aid-spe355>3.0.co;2-l	OtherJournal	2001	3	3	0	null	3	100.00
Henz01	10.1287/opre.49.1.163.11193	ORJournal	2001	65	68	0	null	68	100.00
Rgin2001	10.1090/dimacs/057/07	Inbook	2001	28	29	0	null	29	100.00
Baptiste2001	10.1007/978-1-4615-1479-4_2	Inbook	2001	1	1	0	null	1	100.00
LopezAKYG00	10.1016/s0947-3580(00)71114-9	OtherJournal	2000	0	0	0	null	0	NaN
Hooker00	10.1002/9781118033036	Book	2000	185	186	0	null	186	100.00
Simonis99	10.1007/3-540-45406-3_6	OtherConf	1999	5	5	0	null	5	100.00
DorndorfPH99	10.1007/978-3-642-58409-1_35	OtherConf	1999	0	0	0	null	0	NaN
DorndorfHP99	10.1007/978-1-4615-5533-9_10	Inbook	1999	18	18	0	null	18	100.00

Key	DOI	Source Group	Year	Nr Citations	Crossref Citations	Scopus Citations	WoS Citations	Range Citations	Range Percentage
CarlssonKA99	10.1007/3-540-49201-1_23	OtherConf	1999	1	1	0	null	1	100.00
PembertonG98	10.1090/dimacs/057/06	OtherConf	1998	26	0	0	null	26	100.00
MarriottS98	10.7551/mitpress/5625.001.0001	Background	1998	410	423	0	null	423	100.00
BeckDDF98	10.1002/(sici)1099-1425(199808)1:2<89::aid-jos9>3.0.co;2-h	OtherJournal	1998	9	8	0	null	9	100.00
Jaffar1998	10.1093/oso/9780198537922.003.0012	Inbook	1998	3	3	0	null	3	100.00
Mesghouni1997	10.1007/978-0-387-35086-8_12	Inbook	1997	2	2	0	null	2	100.00
Simonis95a	10.1007/3-540-60794-3_11	OtherConf	1995	1	1	0	null	1	100.00
Schiex1994	10.1142/s0218213094000108	OtherJournal	1994	65	66	0	null	66	100.00
Freuder1994	10.7551/mitpress/2122.001.0001	Book	1994	23	22	0	null	23	100.00
Icmeli1993	10.1108/01443579310046454	OtherJournal	1993	97	99	0	null	99	100.00
Barber1993	10.1145/152947.152955	OtherJournal	1993	13	13	0	null	13	100.00
BaptisteLV92	10.1109/robot.1992.220195	OtherConf	1992	13	11	0	null	13	100.00
Demeulemeester1992	10.1287/mnsc.38.12.1803	ORJournal	1992	380	387	0	null	387	100.00
Elmaghraby1992	10.1287/mnsc.38.9.1245	ORJournal	1992	117	121	0	null	121	100.00
CarlierP90	10.1007/bf03543071	Background	1990	112	114	0	null	114	100.00
CarlierP89	10.1287/mnsc.35.2.164	Background	1989	516	524	0	null	524	100.00
PritskerWW69	10.1287/mnsc.16.1.93	Background	1969	504	518	0	null	518	100.00

2.1 Range of Citation Counts

We get citation counts for the works included in the survey from different sources. OpenCitations provides the set of papers citing a reference, but only if both have DOIs. Crossref gives a count of how many papers cite a reference, they include some papers without DOI. Scopus gives a citation count, but does not give access to the actual citations. In this table we show the works with the largest range of citation count, excluding all background works. A typical issue is that one source does not cover the work, and has a zero count. An alternative is where papers with many citations give a slightly different count depending on which links are included in their database.

The results seem to indicate the using multiple sources is required, to avoid leaving out works that are not covered by one specific source. Note that the WoS numbers are only present for a few works, we show them, but do not include them in computing range.

Table 4: Works with largest Range of Citation Counts

Key	DOI	Source Group	Year	Nr Citations	Crossref Citations	Scopus Citations	WoS Citations	Range Citations	Range Percentage
Demeulemeester1992	10.1287/mnsc.38.12.1803	ORJournal	1992	380	387	0	null	387	100.00
BaptistePN01	10.1007/978-1-4615-1479-4	Book	2001	296	302	0	null	302	100.00
Hooker00	10.1002/9781118033036	Book	2000	185	186	0	null	186	100.00
BensanaLV99	10.1023/a:1026488509554	Constraints	1999	99	0	150	null	150	100.00
JainM99	10.1016/s0377-2217(98)00113-1	EJOR	1999	490	503	630	null	140	22.22
Elmaghraby1992	10.1287/mnsc.38.9.1245	ORJournal	1992	117	121	0	null	121	100.00
SakkoutW00	10.1023/a:1009856210543	Constraints	2000	73	0	105	null	105	100.00
Icmeli1993	10.1108/01443579310046454	OtherJournal	1993	97	99	0	null	99	100.00
Smith-Miles2009	10.1145/1456650.1456656	OtherJournal	2009	298	307	395	null	97	24.56
Hooker02	10.1287/ijoc.14.4.295.2828	InformsJC	2002	94	93	0	null	94	100.00
MintonJPL92	10.1016/0004-3702(92)90007-k	AIJournal	1992	437	440	525	null	88	16.76
BaptistePN99	10.1023/a:1018995000688	ORJournal	1999	72	0	85	null	85	100.00
Younes2003	10.1613/jair.1136	OtherJournal	2003	54	55	128	null	74	57.81
OhrimenkoSC09	10.1007/s10601-008-9064-x	Constraints	2009	127	128	198	null	71	35.86

Key	DOI	Source Group	Year	Nr Citations	Crossref Citations	Scopus Citations	WoS Citations	Range Citations	Range Percentage
BlazewiczDP96	10.1016/0377-2217(95)00362-2	EJOR	1996	344	357	412	null	68	16.50
Henz01	10.1287/opre.49.1.163.11193	ORJournal	2001	65	68	0	null	68	100.00
RodosekWH99	10.1023/a:1018904229454	ORJournal	1999	53	0	67	null	67	100.00
Schiex1994	10.1142/s0218213094000108	OtherJournal	1994	65	66	0	null	66	100.00
ArtiguesDN08	10.1002/9780470611227	Book	2008	63	60	0	null	63	100.00
BaptisteP00	10.1023/a:1009822502231	Constraints	2000	46	0	62	null	62	100.00
BeldiceanuC94	10.1016/0895-7177(94)90127-9	OtherJournal	1994	167	169	223	null	56	25.11
LaborieRSV18	10.1007/s10601-018-9281-x	Constraints	2018	148	178	203	null	55	27.09
Fisher1985	10.1287/inte.15.2.10	OtherJournal	1985	462	473	517	null	55	10.64
HookerO03	10.1007/s10107-003-0375-9	OtherJournal	2003	317	333	371	null	54	14.56
MengZRZL20	10.1016/j.cie.2020.106347	OtherJournal	2020	100	133	152	null	52	34.21
Wallace96	10.1007/bf00143881	Constraints	1996	87	89	138	null	51	36.96
NuijtenP98	10.1023/a:1009687210594	OtherJournal	1998	42	0	50	null	50	100.00
EastonNT02	10.1007/978-3-540-45157-0_6	OtherConf	2002	48	50	0	null	50	100.00
Yang2000	10.1109/72.839016	OtherJournal	2000	37	0	48	null	48	100.00
Laborie03	10.1016/s0004-3702(02)00362-4	AIJournal	2003	128	129	175	null	47	26.86
HenzMT04	10.1016/s0377-2217(03)00101-2	EJOR	2004	44	47	0	null	47	100.00
BeckR03	10.1023/a:1021849405707	ORJournal	2003	29	0	45	null	45	100.00
AchterbergBKW08	10.1007/978-3-540-68155-7_4	CPAIOR	2008	80	80	125	null	45	36.00
JainG01	10.1287/ijoc.13.4.258.9733	InformsJC	2001	279	284	321	null	42	13.08
Zhu2006	10.1287/ijoc.1040.0121	InformsJC	2006	78	85	118	null	40	33.90
Michel2012	10.1007/978-3-642-29828-8_15	Inbook	2012	47	48	87	null	40	45.98
Laborie09	10.1007/978-3-642-01929-6_12	CPAIOR	2009	53	52	91	null	39	42.86
KendallKRU10	10.1016/j.cor.2009.05.013	ORJournal	2010	181	186	220	161	39	17.73
Gent1996	10.1007/3-540-61551-2_74	Inbook	1996	54	56	93	null	39	41.94
BlazewiczEP19	10.1007/978-3-319-99849-7	Incoll	2019	38	38	0	null	38	100.00
HarjunkoskiMBC14	10.1016/j.compchemeng.2013.12.001	OtherJournal	2014	381	393	418	null	37	8.85
SadehF96	10.1016/0004-3702(95)00098-4	AIJournal	1996	95	97	131	null	36	27.48
BeckW07	10.1613/jair.2080	AIJournal	2007	27	31	61	null	34	55.74
Ham18	10.1016/j.trc.2018.03.025	OtherJournal	2018	164	192	197	null	33	16.75
MercierH08	10.1287/ijoc.1070.0226	InformsJC	2008	32	33	0	null	33	100.00
PerronSF04	10.1007/978-3-540-30201-8_35	CP	2004	34	34	67	null	33	49.25
SchildW00	10.1023/a:1009804226473	Constraints	2000	23	0	32	null	32	100.00
CorreaLR07	10.1016/j.cor.2005.07.004	ORJournal	2007	106	114	137	null	31	22.63
LiW08	10.1007/s10951-008-0079-3	OtherJournal	2008	113	123	144	null	31	21.53
Lindauer2015	10.1613/jair.4726	OtherJournal	2015	53	58	84	null	31	36.90

We only have Web of Science data in a few bibtex entries, we here try to evaluate their citation numbers on those bib entries which are from WoS.

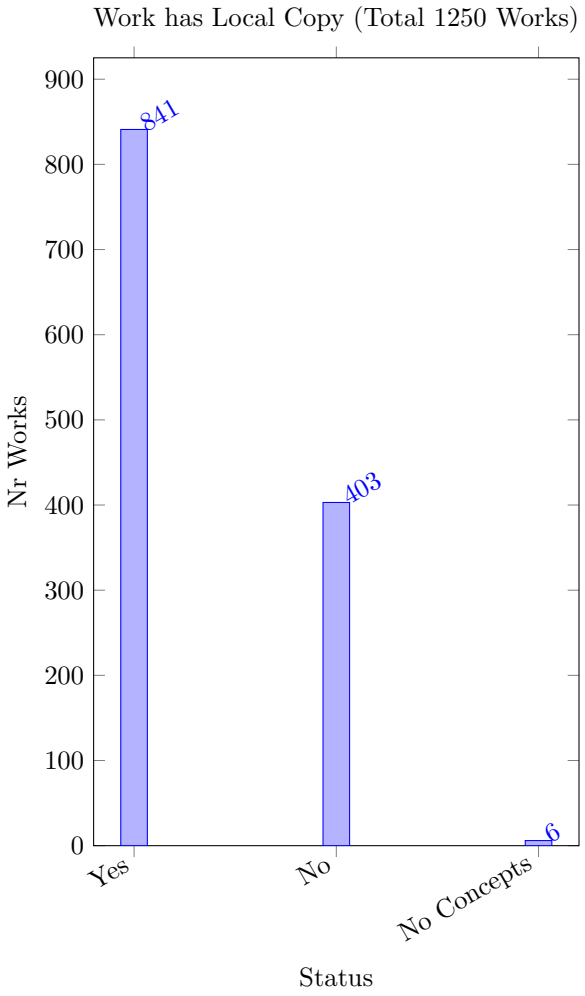
Table 5: Works with WoS Citation Counts

Key	DOI	Source Group	Year	Nr Citations	Crossref Citations	Scopus Citations	WoS Citations	Range Citations	Range Percentage
KendallKRU10	10.1016/j.cor.2009.05.013	ORJournal	2010	181	186	220	161	39	17.73
MeskensDL13	10.1016/j.dss.2012.10.019	OtherJournal	2013	102	102	116	103	14	12.07
RasmussenT07	10.1016/j.ejor.2005.10.063	EJOR	2007	60	62	71	53	11	15.49
Ribeiro12	10.1111/j.1475-3995.2011.00819.x	OtherJournal	2012	47	52	54	41	7	12.96
ElfJR03	10.1016/s0167-6377(03)00025-7	OtherJournal	2003	41	41	45	34	4	8.89
Trick03	10.1007/978-3-540-45157-0_4	OtherConf	2003	22	24	39	34	17	43.59
RasmussenT06	10.1007/11757375_15	CPAIOR	2006	10	12	19	11	9	47.37

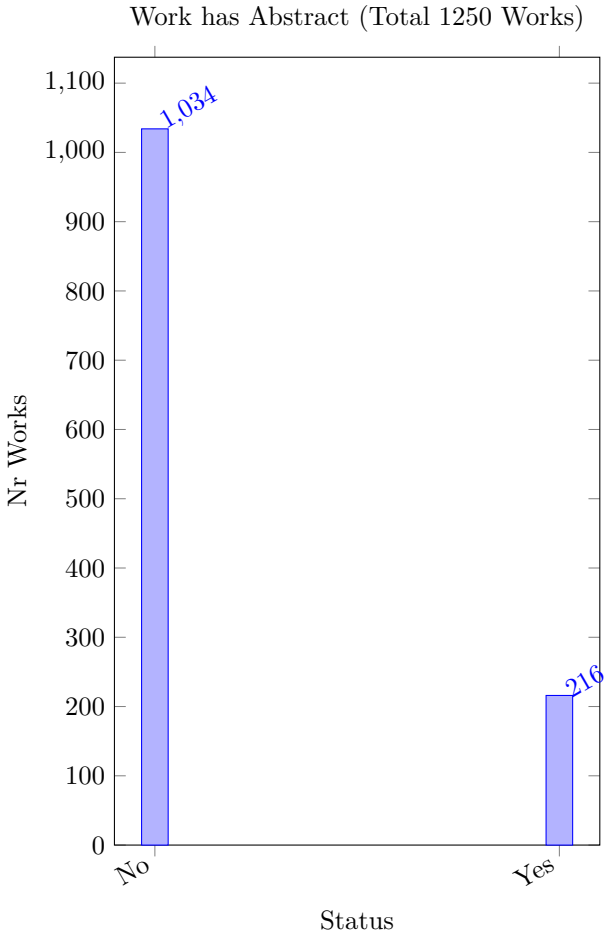
Key	DOI	Source Group	Year	Nr Citations	Crossref Citations	Scopus Citations	WoS Citations	Range Citations	Range Percentage
FelizariAL09	10.1016/s1570-7946(05)80013-6	OtherConf	2009	7	7	12	1	5	41.67
MagataoAN05	10.1016/s1570-7946(05)80013-6	OtherConf	2005	7	7	12	12	5	41.67
RasmussenT09	10.1007/s10479-008-0384-4	ORJournal	2009	8	9	9	8	1	11.11
Trick11	10.1007/978-1-4419-1644-0_15	Incoll	2011	2	2	5	5	3	60.00
LiuLH19a	10.5220/0007252300290039	OtherConf	2019	3	3	4	4	1	25.00
SuCC13	10.1016/j.cie.2013.02.021	OtherJournal	2013	2	2	4	1	2	50.00
ZengM12	10.1016/j.cor.2011.10.004	ORJournal	2012	3	3	4	3	1	25.00
GhandehariK22	10.1016/j.apm.2022.01.001	OtherJournal	2022	4	4	4	3	0	0.00
BulckG22	10.1007/s10951-021-00717-3	OtherJournal	2022	2	3	3	3	1	33.33
Perron05	10.1007/11564751_67	CP	2005	1	1	2	1	1	50.00
LiuLH18	10.1007/978-3-030-05918-7_7	OtherConf	2018	2	2	1	1	1	50.00
MeskensDHG11	n/a	OtherConf	2011	0	0	0	null	0	NaN
NaqviAIAAA22	10.32604/cmc.2022.019653	OtherJournal	2022	0	0	0	0	0	NaN
KonowalenkoMM19	10.1109/tla.2019.8932340	OtherJournal	2019	0	0	0	0	0	NaN

2.2 Local Copies

The tool relies on local pdf copies of works to perform a detailed analysis of the content of the work. We have collected our own private copies of works for that purpose. The following plot shows how many entries do not have a local copy, or which do not extract any concepts from the local copy. A detailed list of all missing entries is given in the main report. Note that in some cases we use an open access version of the work, which might differ slightly from the published version.


Work has Local Copy (Total 1250 Works)
Nr Works
Status
0
100
200
300
400
500
600
700
800
900
841
403
6
Yes
No
No Concepts

2.3 Presence of Abstracts



2.4 Orphan Files

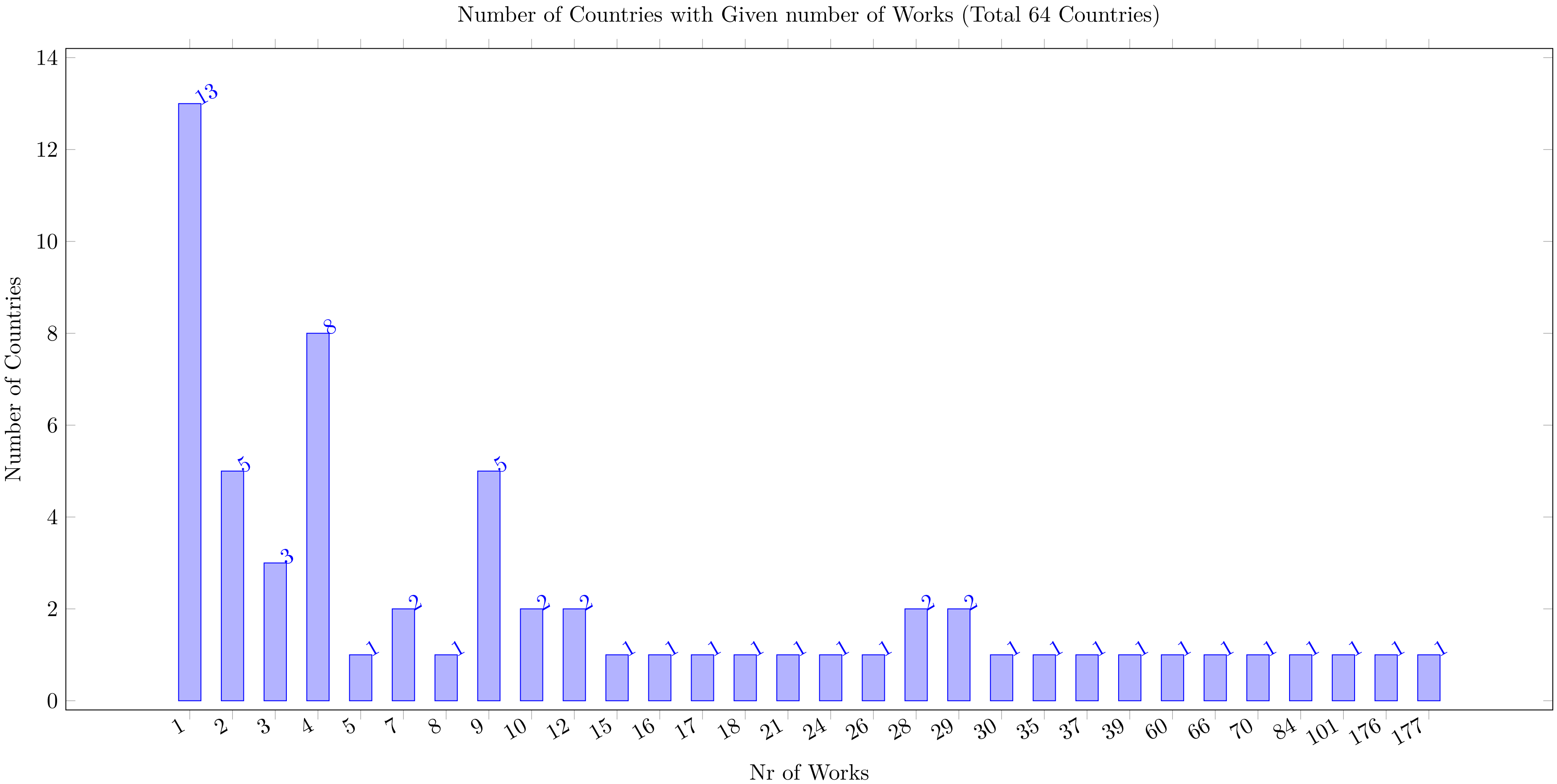
The following list shows entries for which we have a pdf file in the works directory, but the name of hte file does not match any key in the bibliography. These orphans should be resolved, either by correcting the name, or adding a bib entry for the work, or by removing the file, if it is not required.

If there are no files listed, then all pdf files in the works directory correspond to a bib entry, and no clean-up is required.

Table 6: Orphan Files

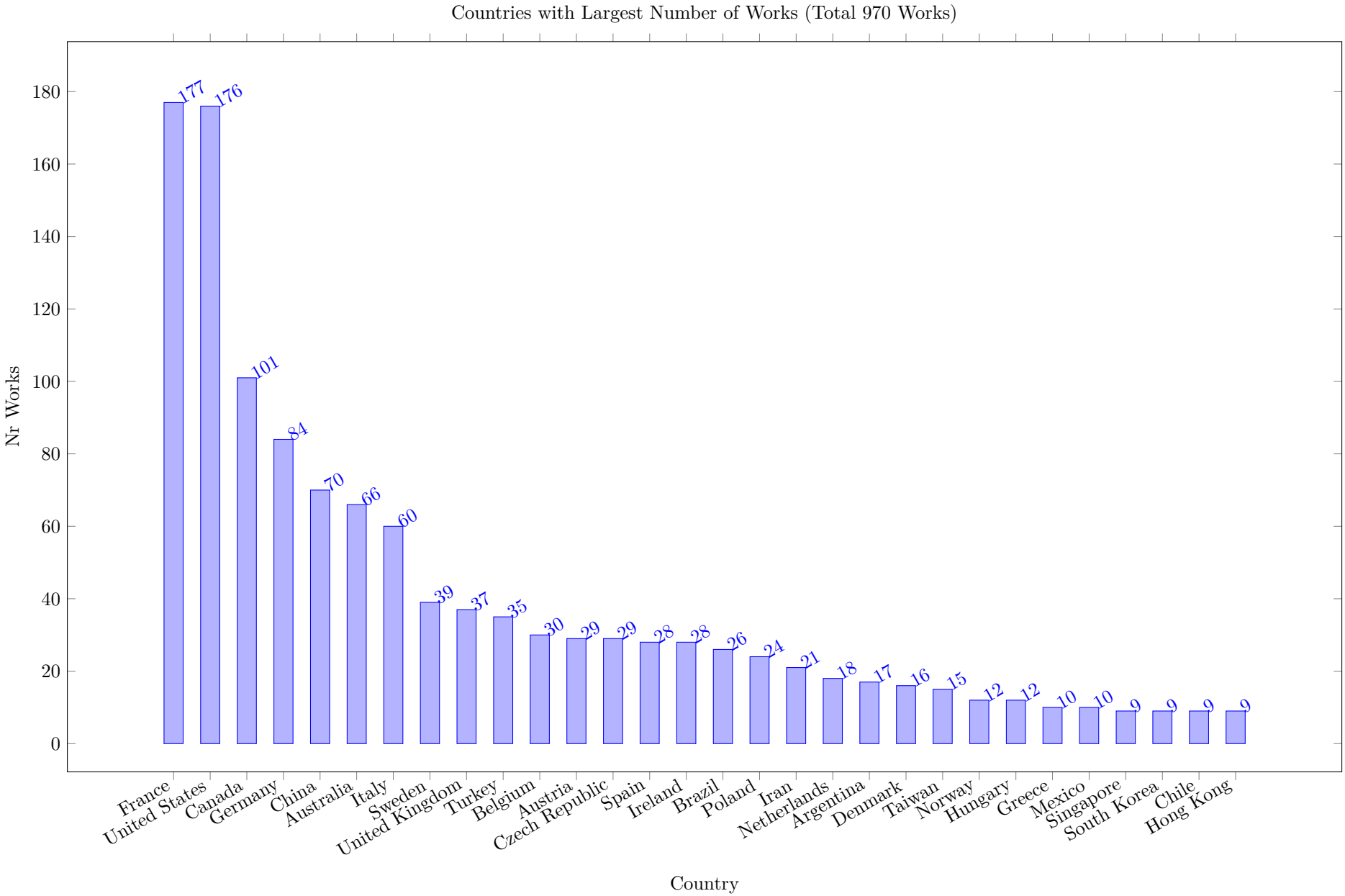
Key	File

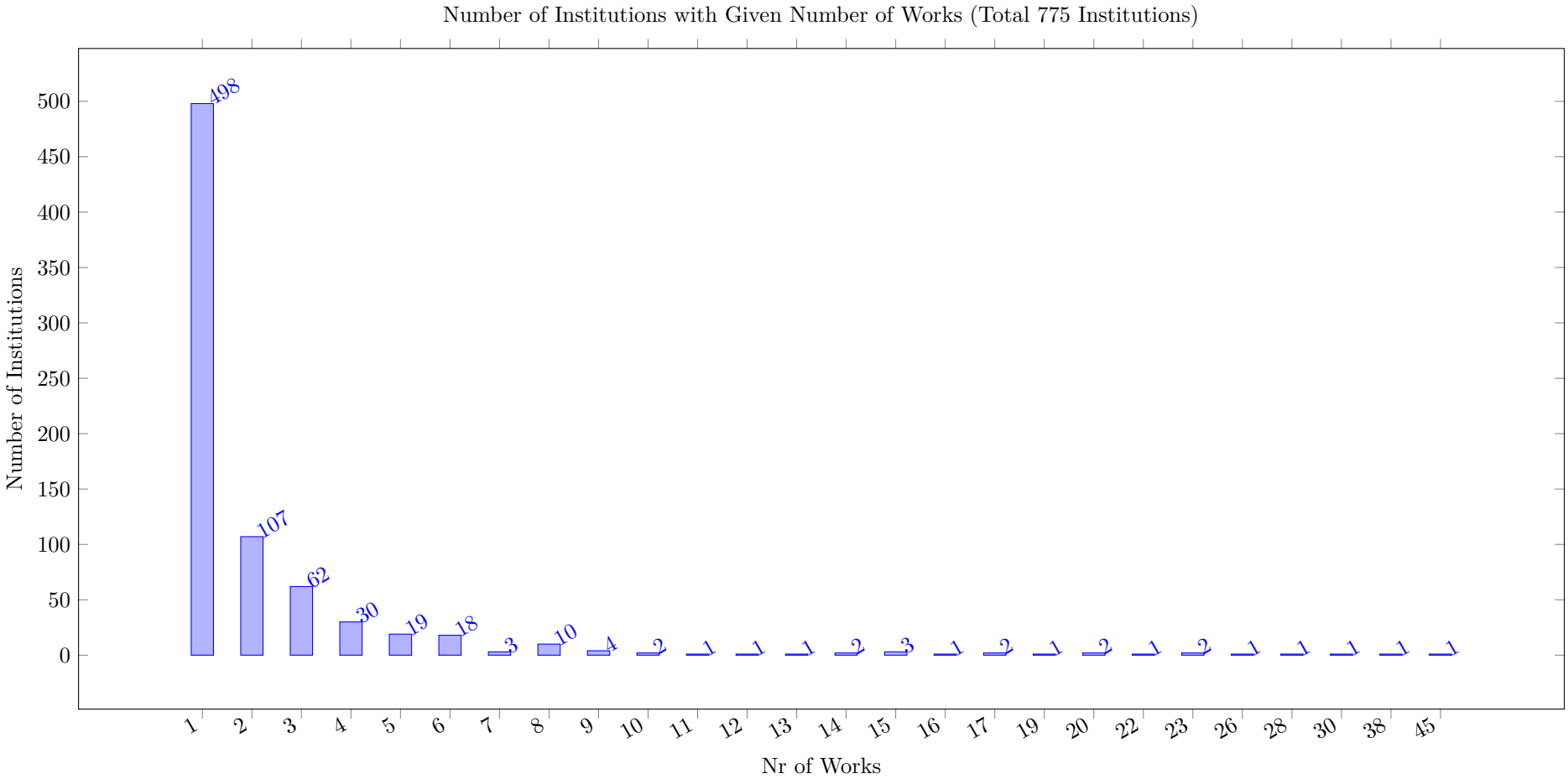
3 Works by Location



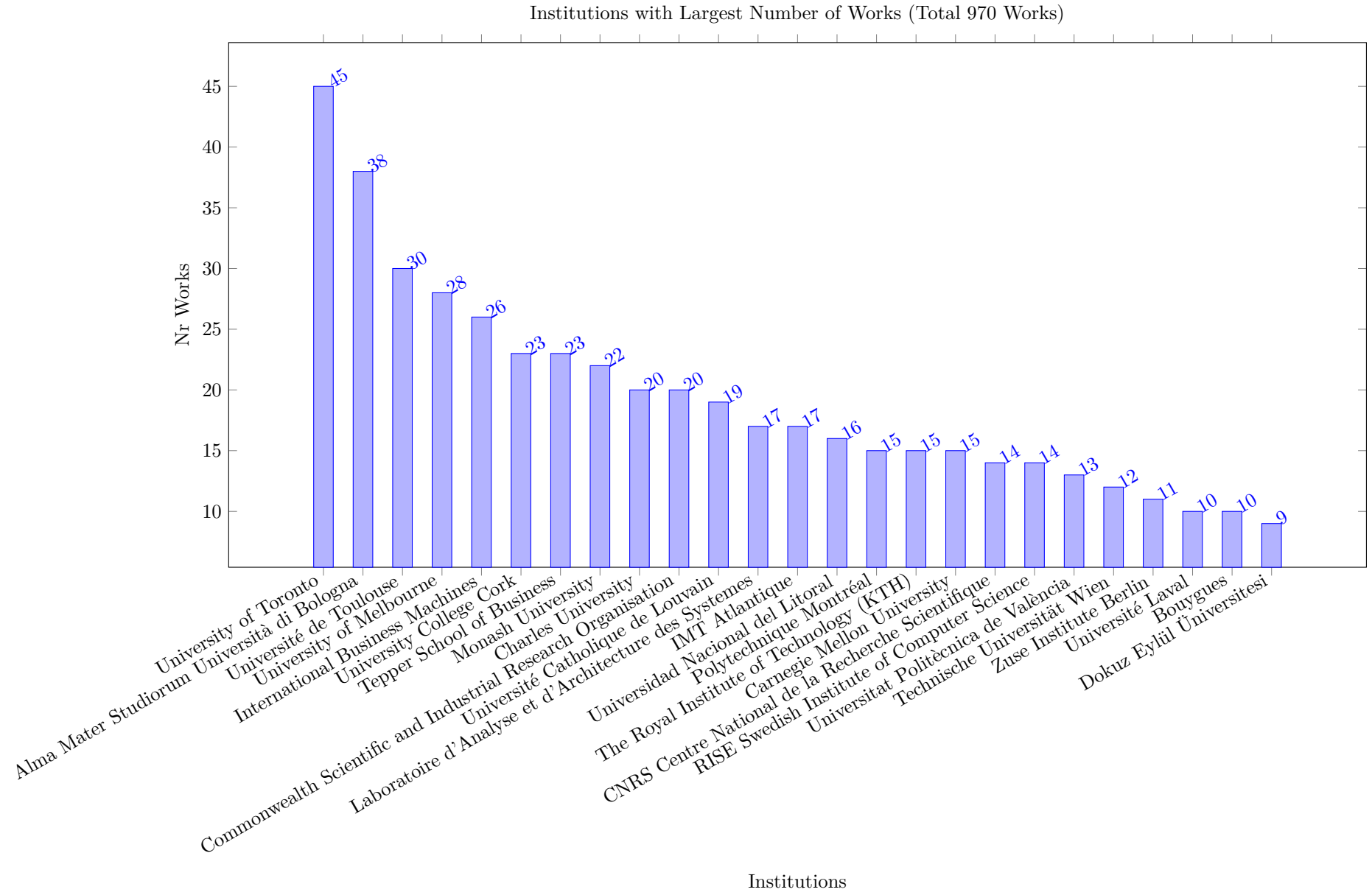
This section analyzes papers by affiliation, which is given by the Scopus data only. Only works which are covered by Scopus are included. We first present the number of papers by country. A paper is counted in this analysis (once), if at least one of the affiliations is from the country. Multiple affiliations from the same country only count once. The 30 countries with the largest counts are shown.

Note that one work will be counted for multiple countries, if the affiliations are from different countries. So the sum of the bar heights typically exceeds the total number of works considered.


Countries with Largest Number of Works (Total 970 Works)
Nr Works
0
20
40
60
80
100
120
140
160
180
177
176
101
84
70
66
60
39
37
35
30
29
29
28
28
26
24
21
18
17
16
15
12
12
10
10
9
9
9
9
France
United States
Canada
Germany
China
Australia
Italy
Sweden
United Kingdom
Turkey
Belgium
Austria
Czech Republic
Spain
Ireland
Brazil
Poland
Iran
Netherlands
Argentina
Denmark
Taiwan
Norway
Hungary
Greece
Mexico
Singapore
South Korea
Chile
Hong Kong
Country

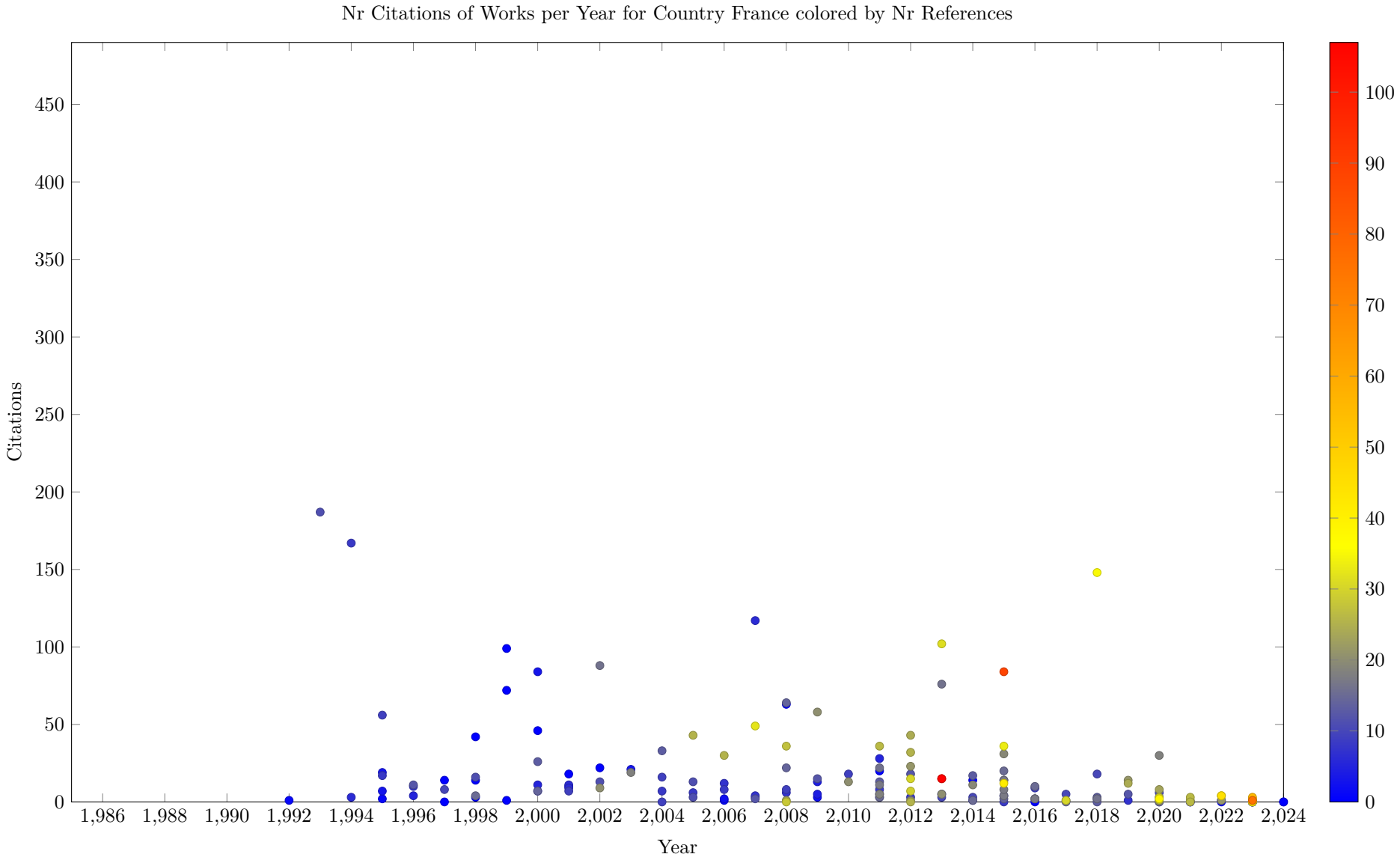


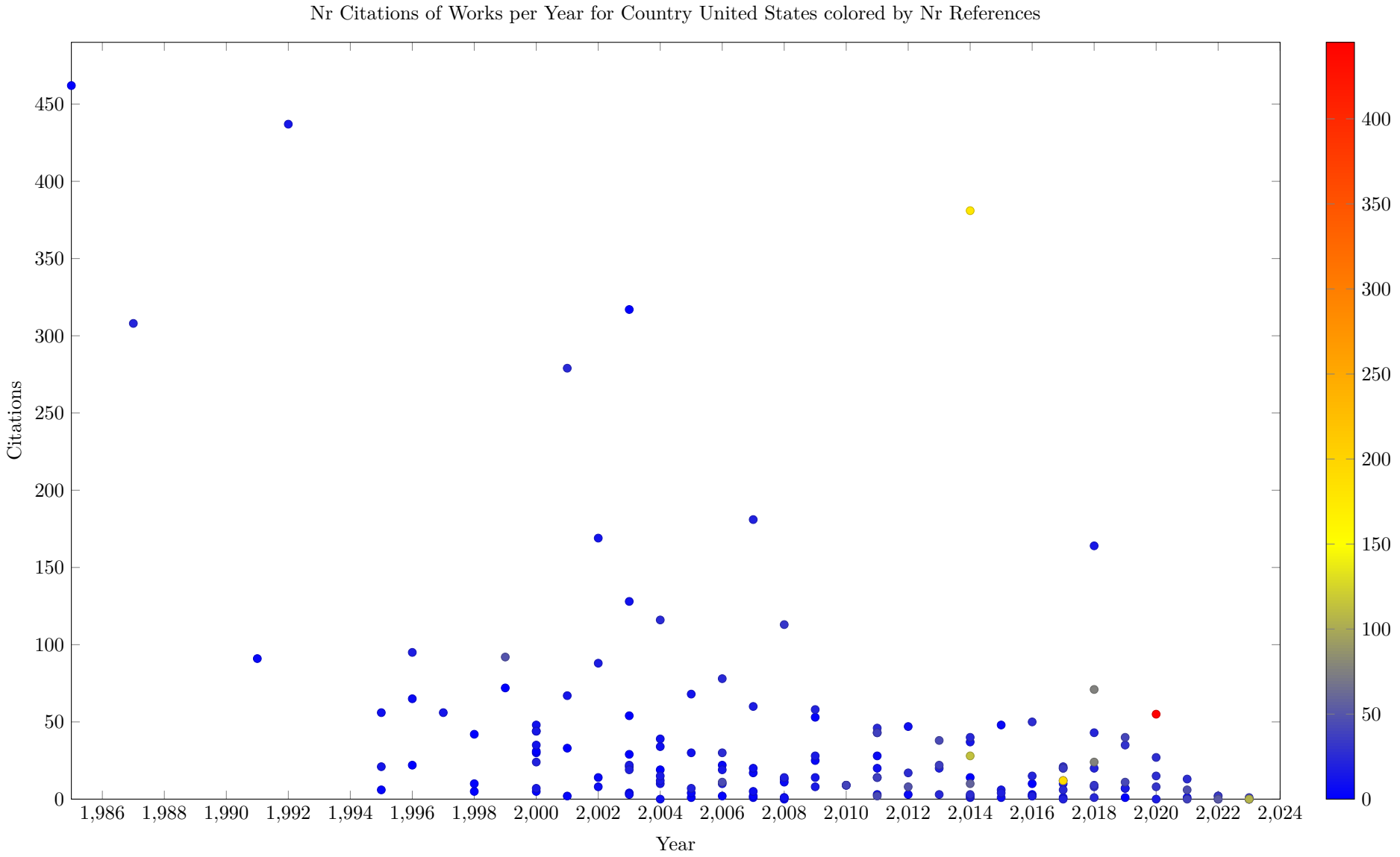
The next plot shows the number of papers associated to institutions, as stated in the Scopus affiliation. A work is counted, if at least one of the affiliations is from a given institution. Due to the format of the Scopus data, we cannot fractionally assign a paper based on the author affiliations, each paper is counted one for every institution for which an affiliation is given. If some author has multiple affiliations listed, we (mis)count the work for each of them.

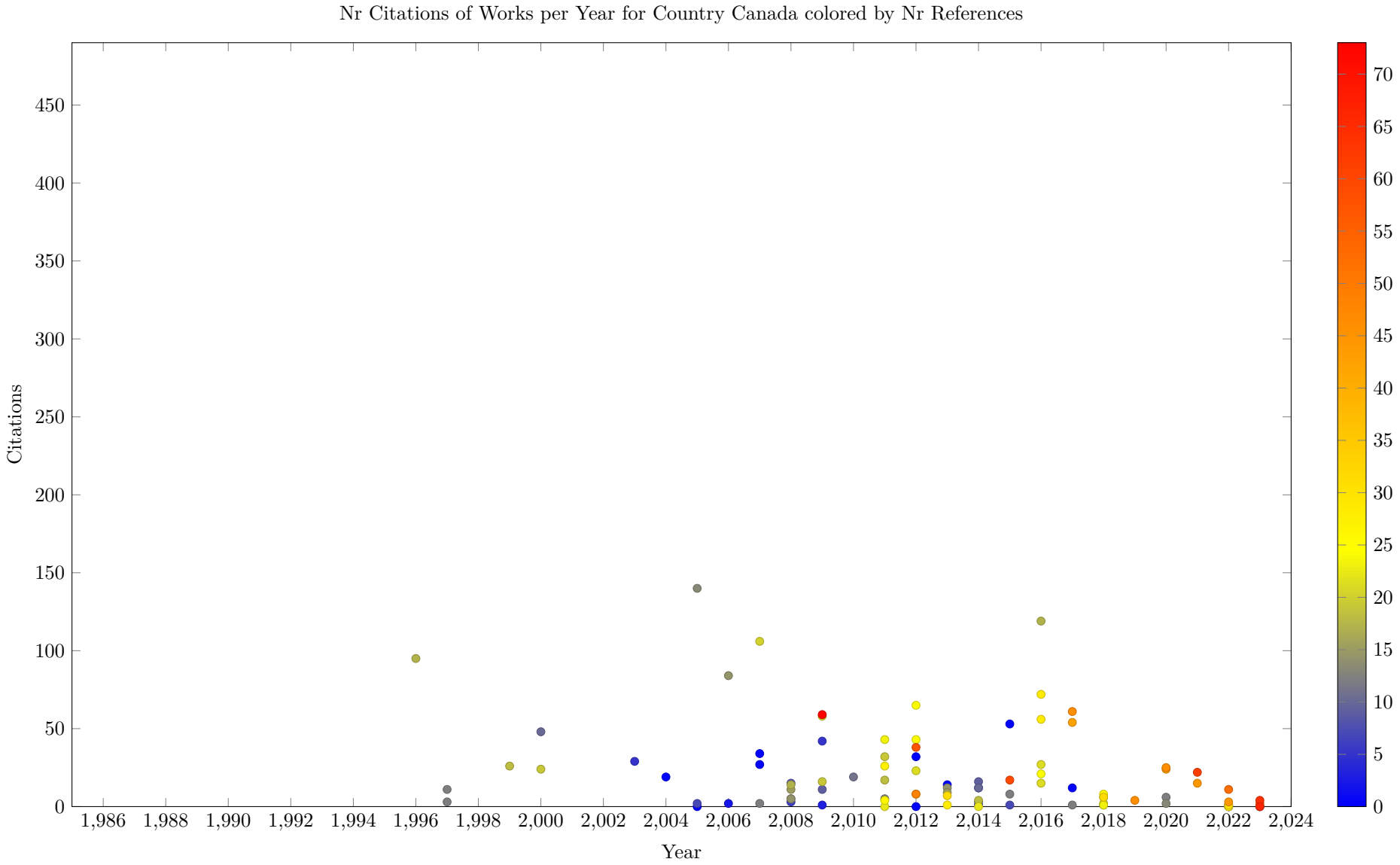

Institutions with Largest Number of Works (Total 970 Works)
Nr Works
Institutions
45
38
30
28
26
23
23
22
20
20
19
17
17
16
15
15
15
14
14
13
12
11
10
10
9
University of Toronto
Alma Mater Studiorum Università di Bologna
Université de Toulouse
University of Melbourne
International Business Machines
University College Cork
Tepper School of Business
Monash University
Charles University
Commonwealth Scientific and Industrial Research Organisation
Université Catholique de Louvain
Laboratoire d'Analyse et d'Architecture des Systèmes
IMT Atlantique
Universidad Nacional del Litoral
Polytechnique Montréal
The Royal Institute of Technology (KTH)
Carnegie Mellon University
CNRS Centre National de la Recherche Scientifique
RISE Swedish Institute of Computer Science
Universitat Politècnica de València
Technische Universität Wien
Zuse Institute Berlin
Université Laval
Bouygues
Dokuz Eylül Üniversitesi

The following plots show for the top 30 countries when the works included were published, and how many citations (OpenCitation count) each paper had. The scatter plots are colored by the number of references (OpenCitation count), this help to identify surveys more easily. The plot gives an indication in which period the work from the country falls, and how influential the published works are. The x and y ranges of all plots are uniform to allow comparison between plots.

It would be nice to have tooltips on the plots, so identify specific works in the plots. This is currently not supported by the framework library used.


Nr Citations of Works per Year for Country France colored by Nr References
Citations
0
50
100
150
200
250
300
350
400
450
Year
1,986
1,988
1,990
1,992
1,994
1,996
1,998
2,000
2,002
2,004
2,006
2,008
2,010
2,012
2,014
2,016
2,018
2,020
2,022
2,024
0
10
20
30
40
50
60
70
80
90
100


Nr Citations of Works per Year for Country United States colored by Nr References
Citations
0
50
100
150
200
250
300
350
400
450
Year
1,986
1,988
1,990
1,992
1,994
1,996
1,998
2,000
2,002
2,004
2,006
2,008
2,010
2,012
2,014
2,016
2,018
2,020
2,022
2,024
0
50
100
150
200
250
300
350
400


Nr Citations of Works per Year for Country Canada colored by Nr References
Citations
0
50
100
150
200
250
300
350
400
450
Year
1,986
1,988
1,990
1,992
1,994
1,996
1,998
2,000
2,002
2,004
2,006
2,008
2,010
2,012
2,014
2,016
2,018
2,020
2,022
2,024
0
5
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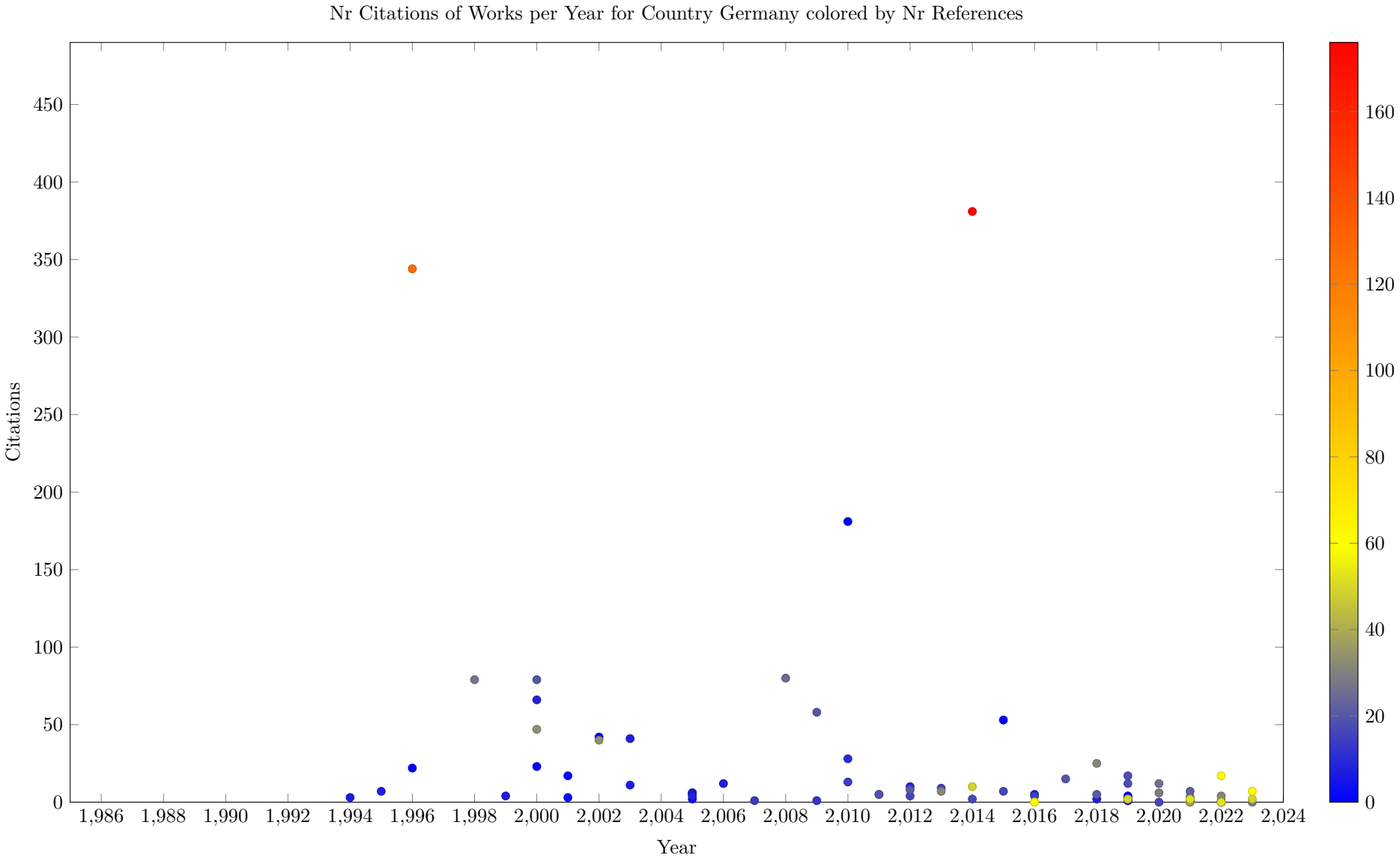
15
20
25
30
35
40
45
50
55
60
65
70


Nr Citations of Works per Year for Country Germany colored by Nr References
Citations
0
50
100
150
200
250
300
350
400
450
Year
1,986
1,988
1,990
1,992
1,994
1,996
1,998
2,000
2,002
2,004
2,006
2,008
2,010
2,012
2,014
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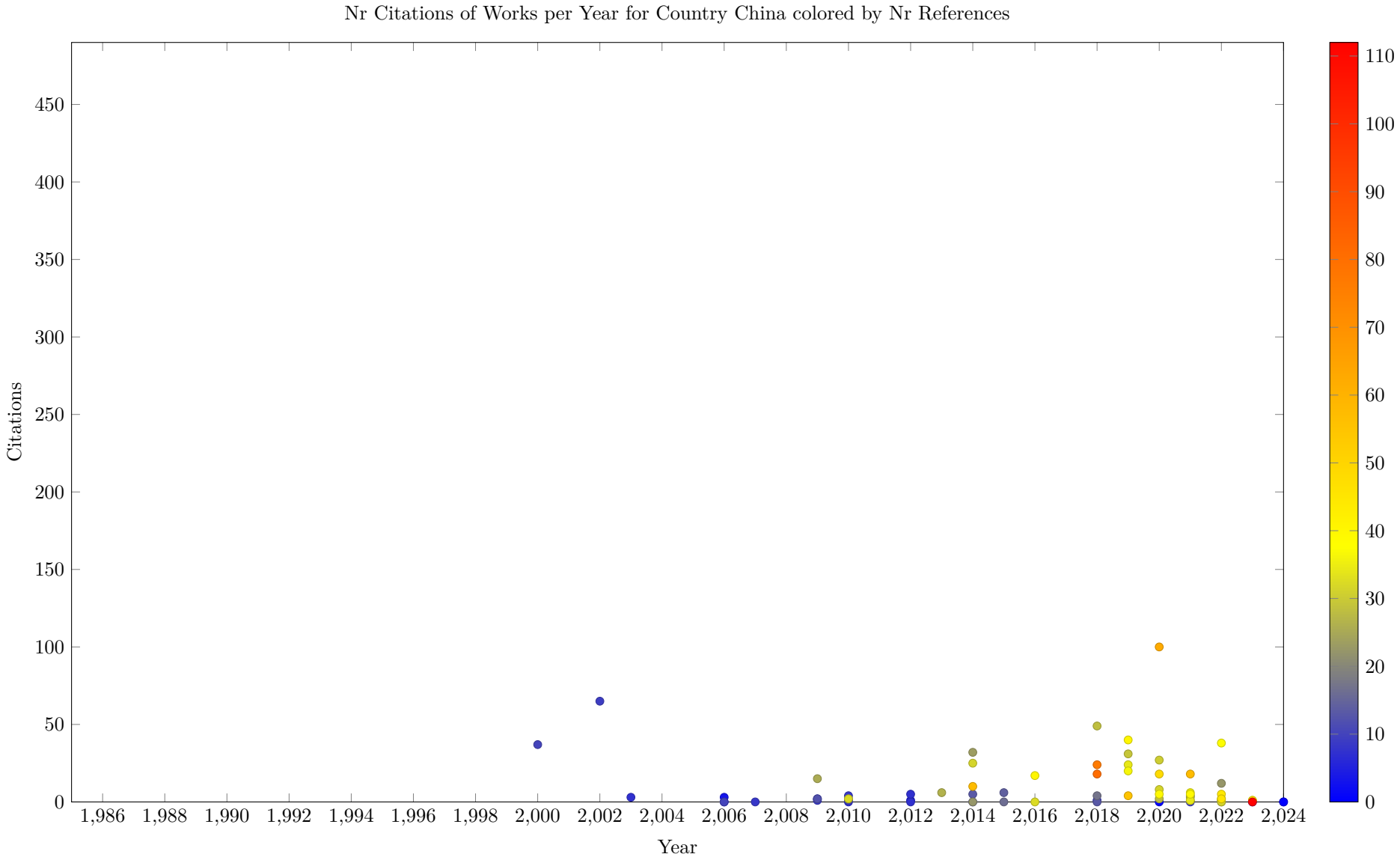
2,018
2,020
2,022
2,024
0
20
40
60
80
100
120
140
160


Nr Citations of Works per Year for Country China colored by Nr References
Citations
0
50
100
150
200
250
300
350
400
450
Year
1,986
1,988
1,990
1,992
1,994
1,996
1,998
2,000
2,002
2,004
2,006
2,008
2,010
2,012
2,014
2,016
2,018
2,020
2,022
2,024
0
10
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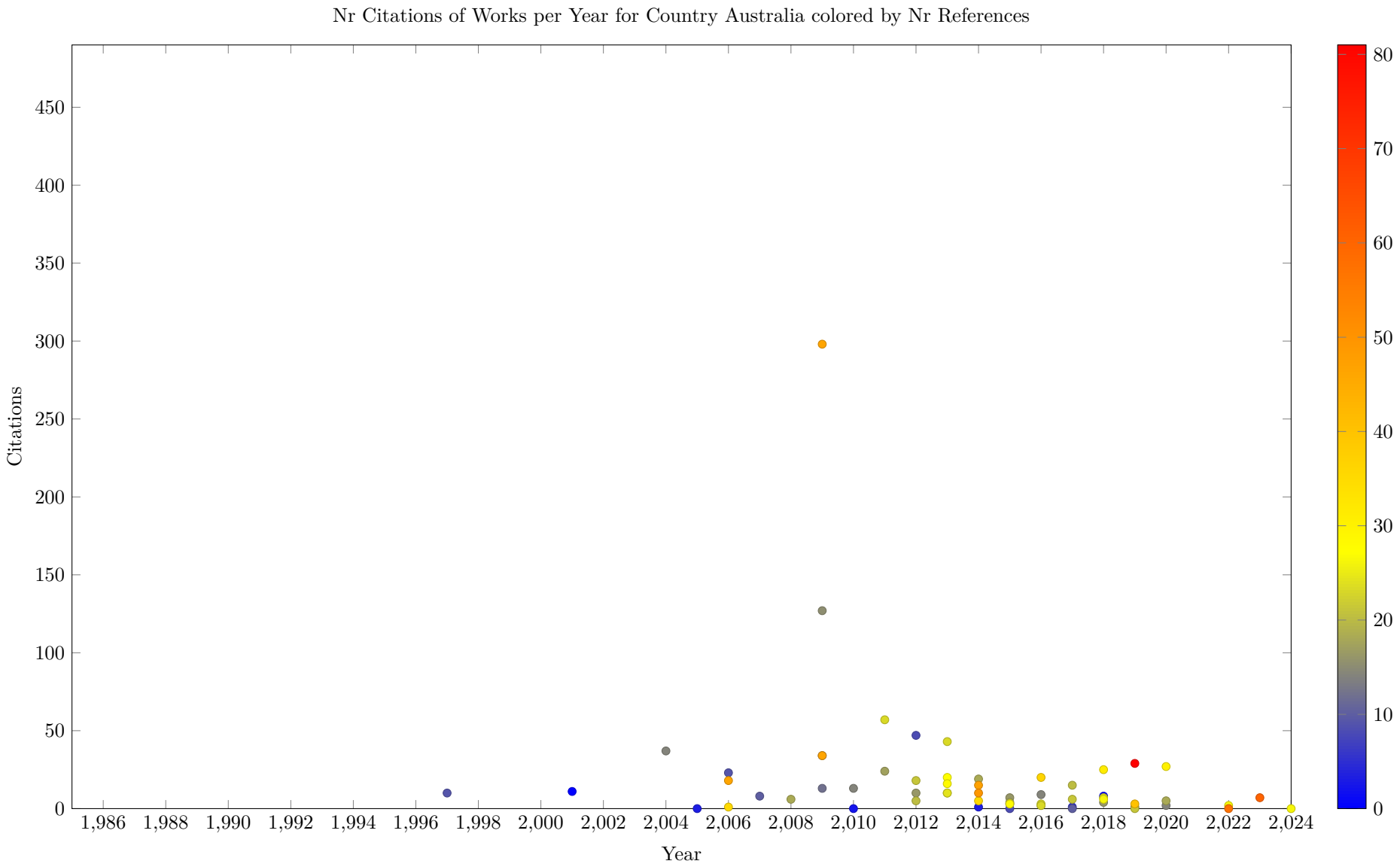
30
40
50
60
70
80
90
100
110


Nr Citations of Works per Year for Country Australia colored by Nr References
Citations
0
50
100
150
200
250
300
350
400
450
Year
1,986
1,988
1,990
1,992
1,994
1,996
1,998
2,000
2,002
2,004
2,006
2,008
2,010
2,012
2,014
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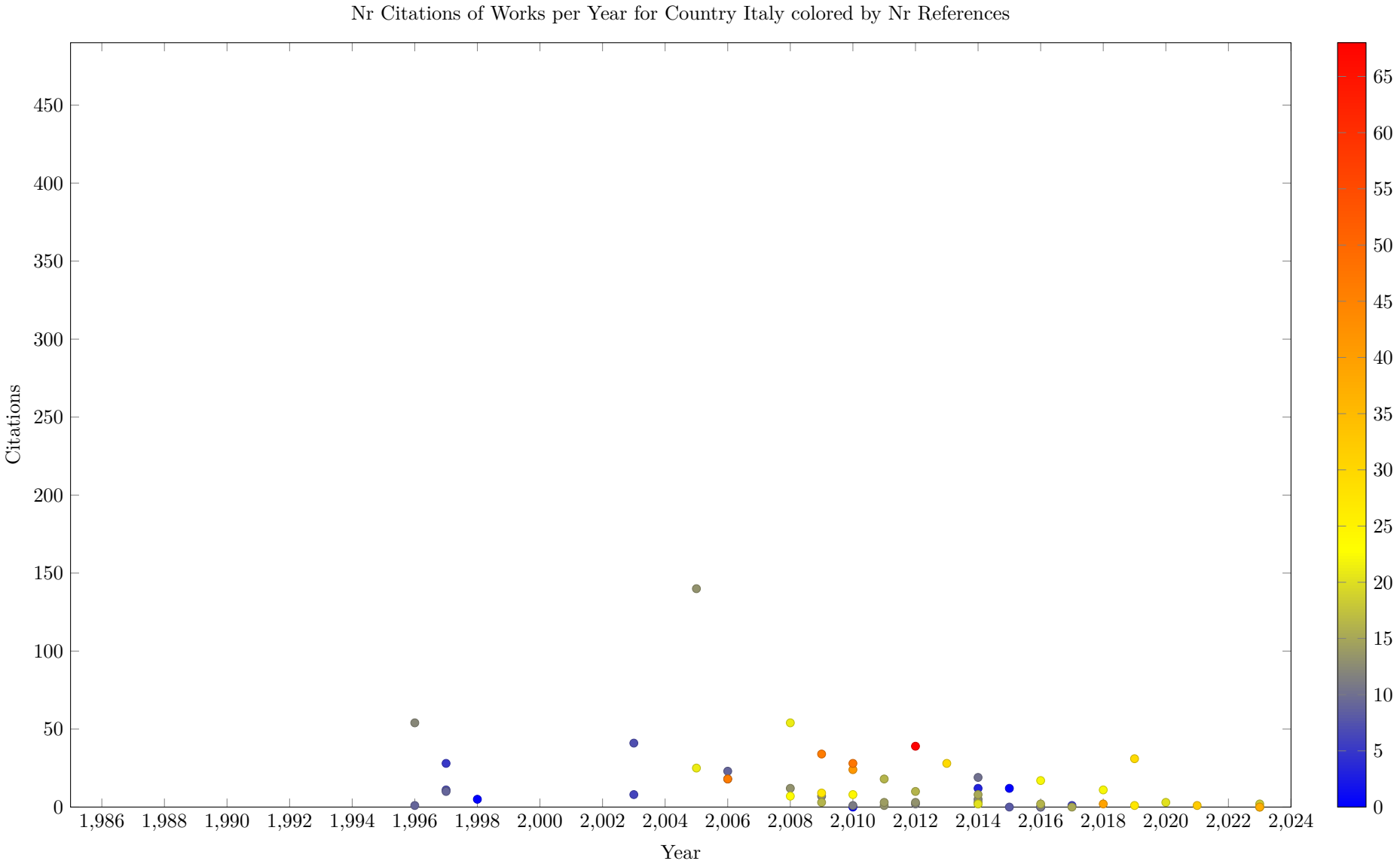
2,018
2,020
2,022
2,024
0
10
20
30
40
50
60
70
80


Nr Citations of Works per Year for Country Italy colored by Nr References
Citations
0
50
100
150
200
250
300
350
400
450
Year
1,986
1,988
1,990
1,992
1,994
1,996
1,998
2,000
2,002
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2,006
2,008
2,010
2,012
2,014
2,016
2,018
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2,024
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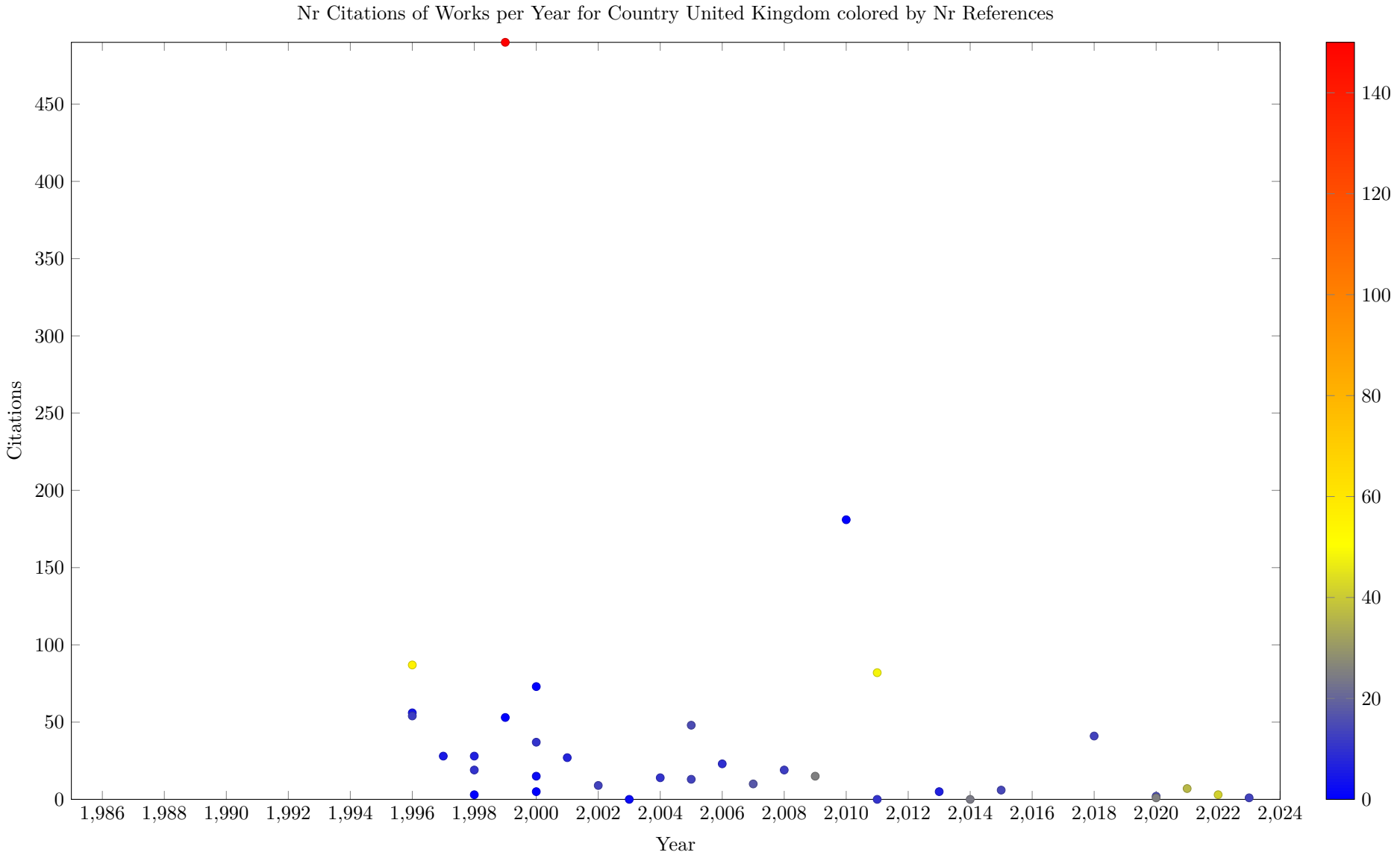
10
15
20
25
30
35
40
45
50
55
60
65


Nr Citations of Works per Year for Country United Kingdom colored by Nr References
Citations
0
50
100
150
200
250
300
350
400
450
Year
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1,988
1,990
1,992
1,994
1,996
1,998
2,000
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2,008
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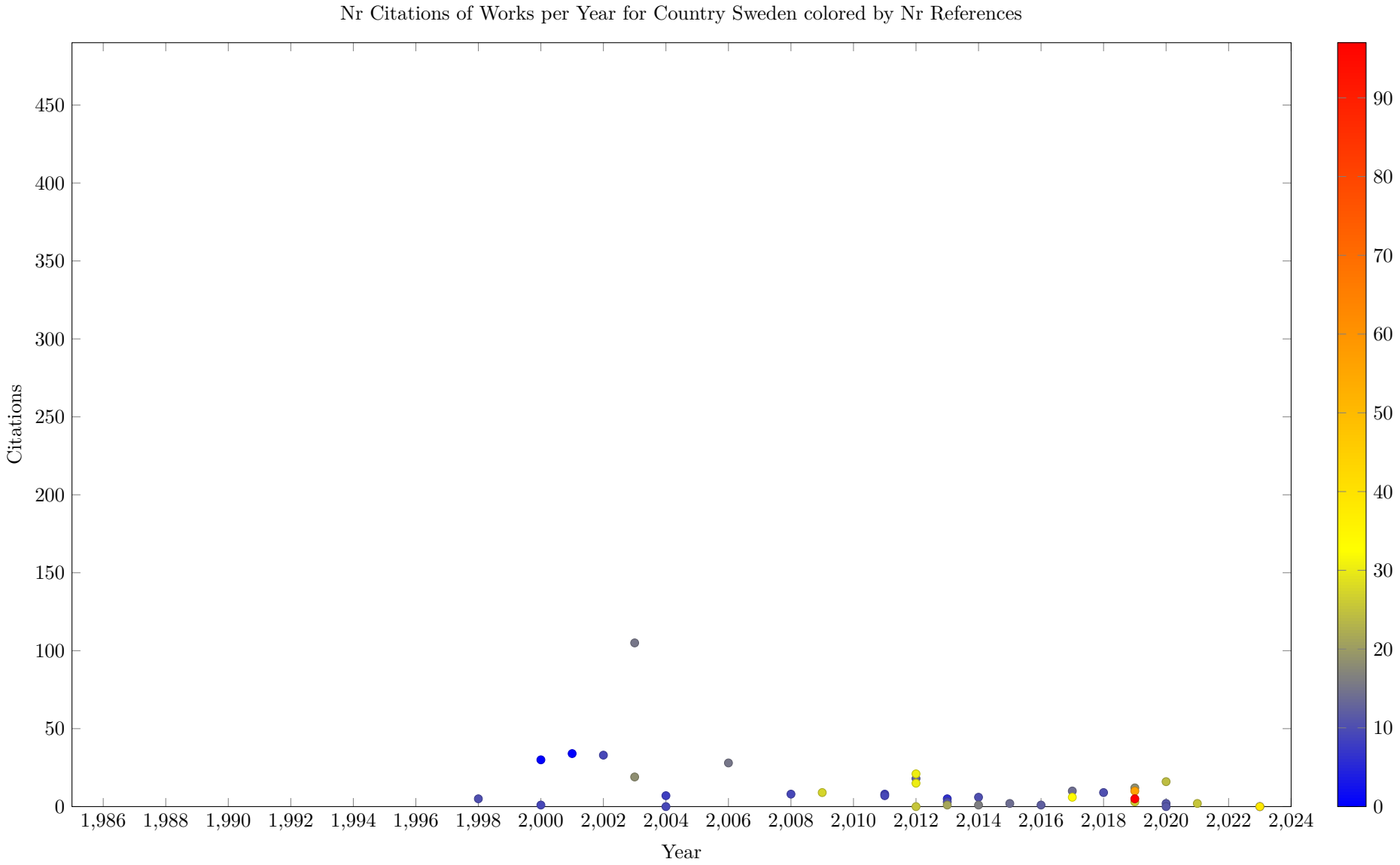
0
20
40
60
80
100
120
140


Nr Citations of Works per Year for Country Sweden colored by Nr References
Citations
0
50
100
150
200
250
300
350
400
450
Year
1,986
1,988
1,990
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1,994
1,996
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2,008
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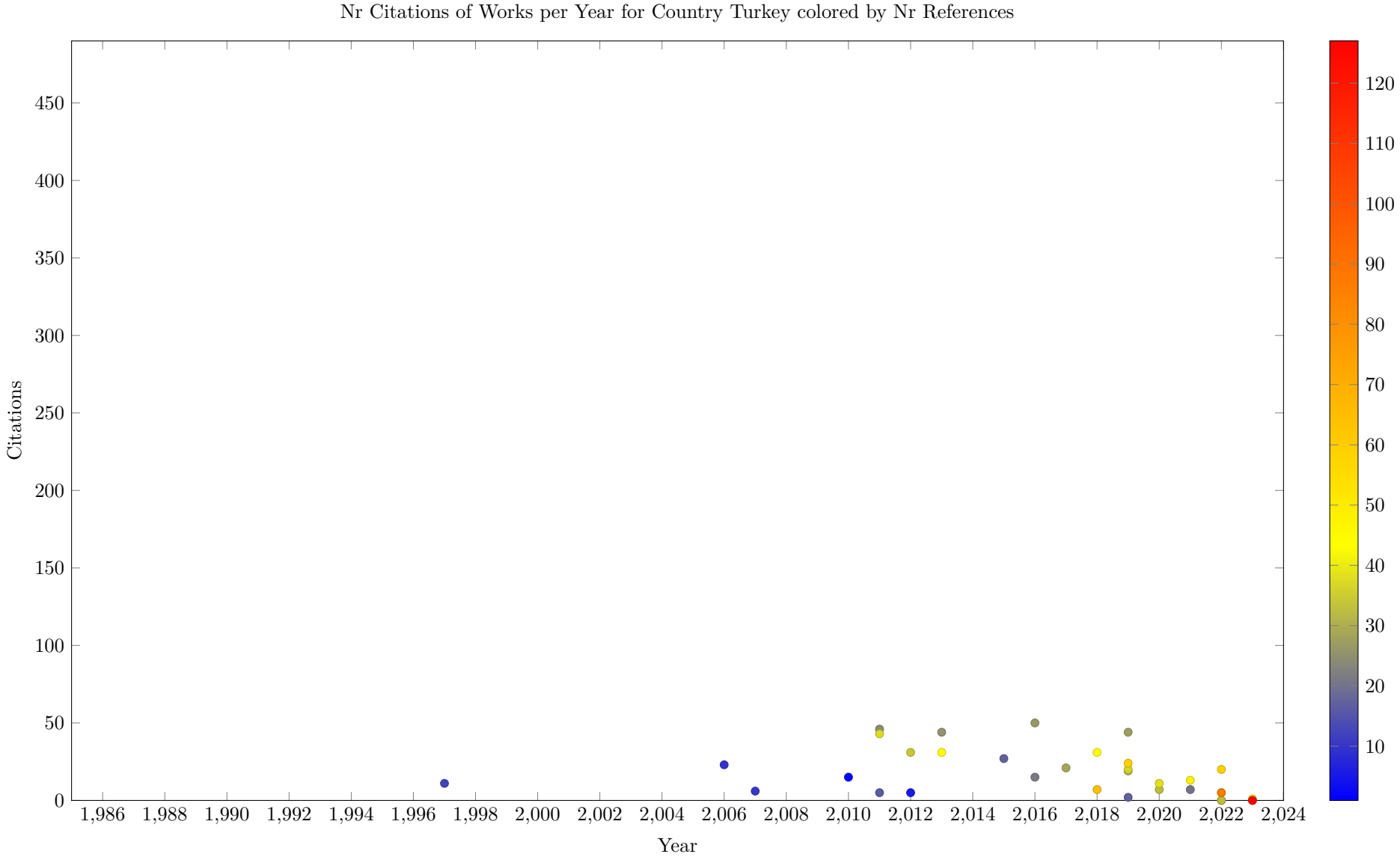
Nr Citations of Works per Year for Country Turkey colored by Nr References
Citations
0
50
100
150
200
250
300
350
400
450
Year
1,986
1,988
1,990
1,992
1,994
1,996
1,998
2,000
2,002
2,004
2,006
2,008
2,010
2,012
2,014
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100
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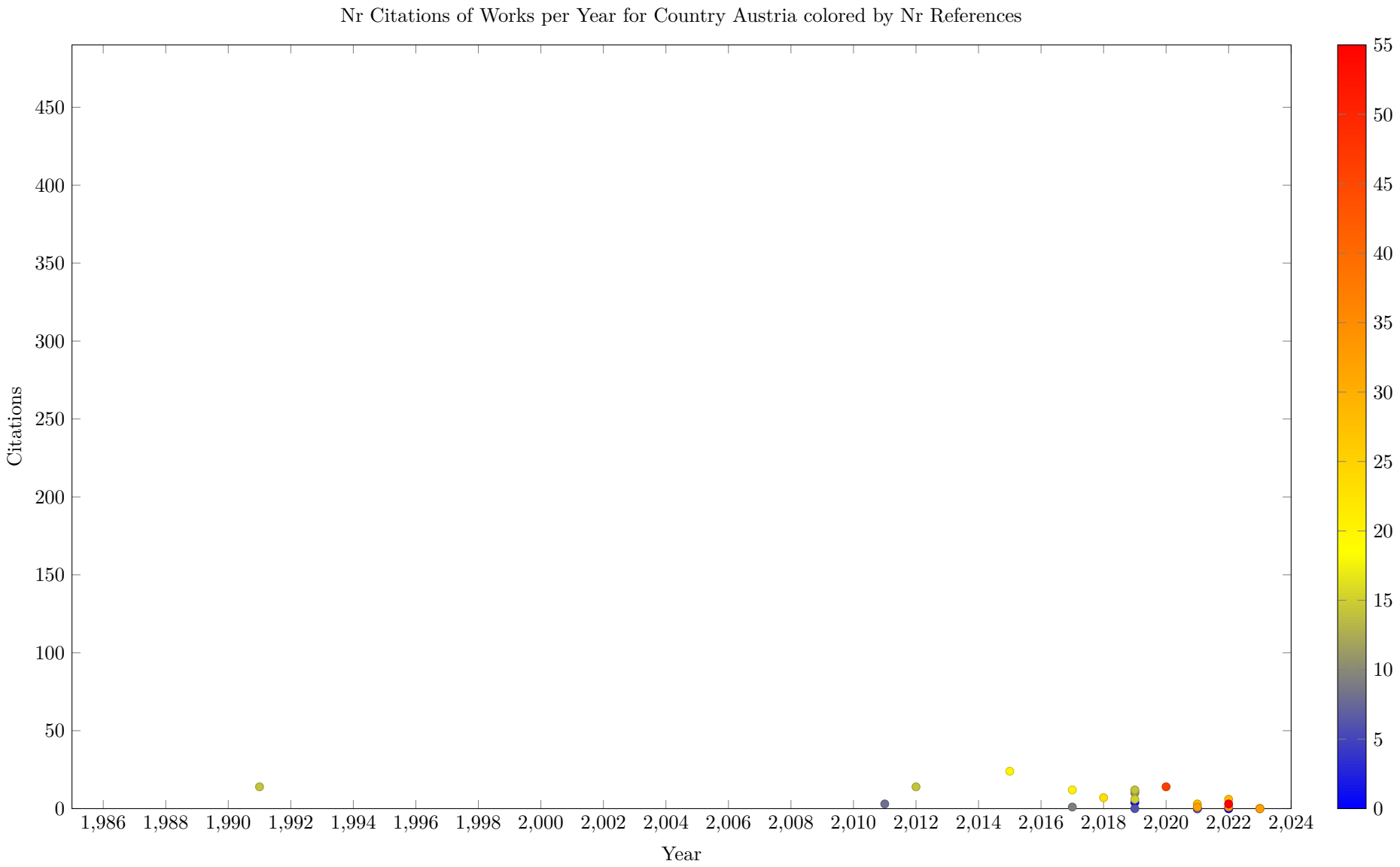
120


Nr Citations of Works per Year for Country Austria colored by Nr References
Citations
0
50
100
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200
250
300
350
400
450
Year
1,986
1,988
1,990
1,992
1,994
1,996
1,998
2,000
2,002
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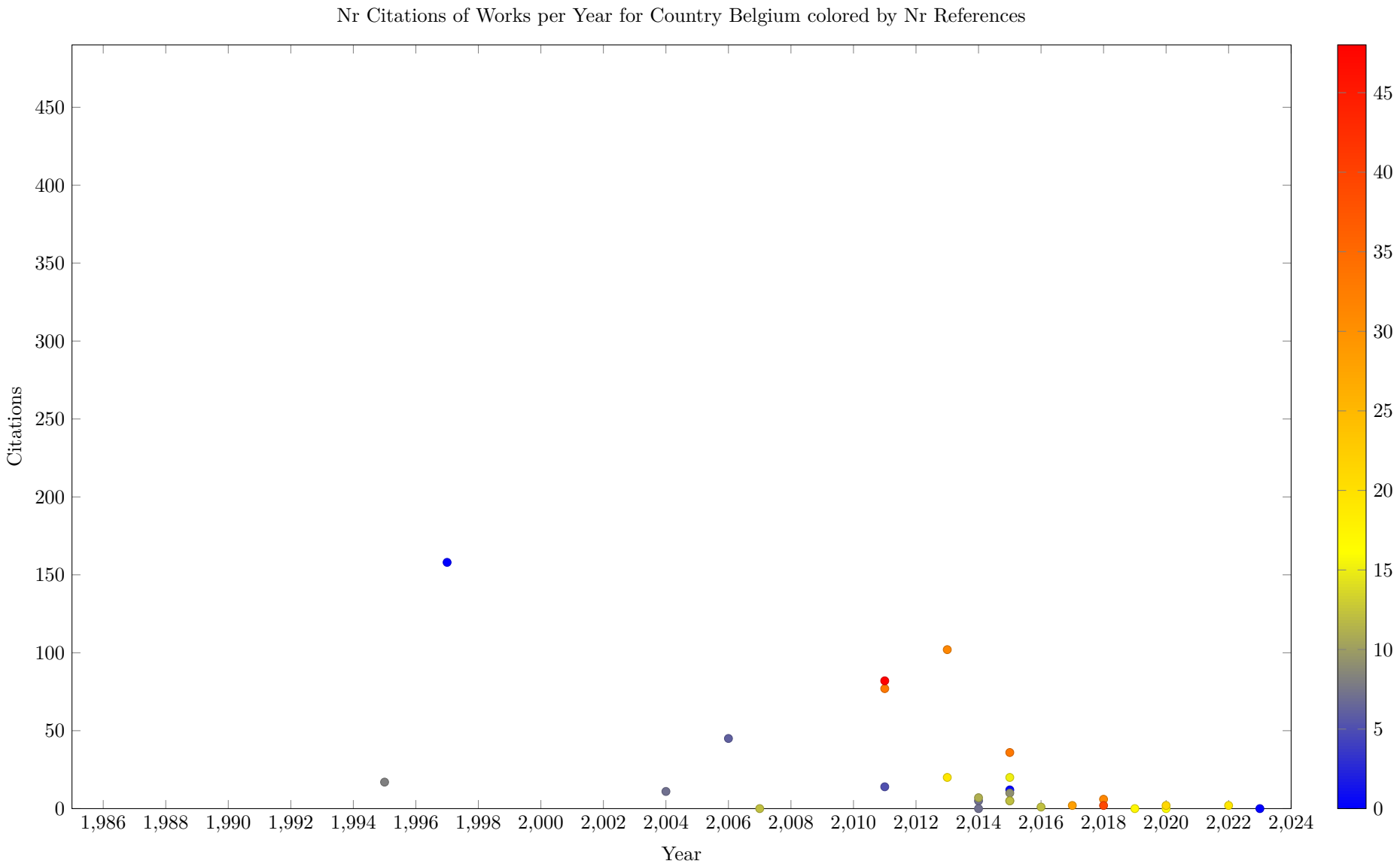
Nr Citations of Works per Year for Country Belgium colored by Nr References
Citations
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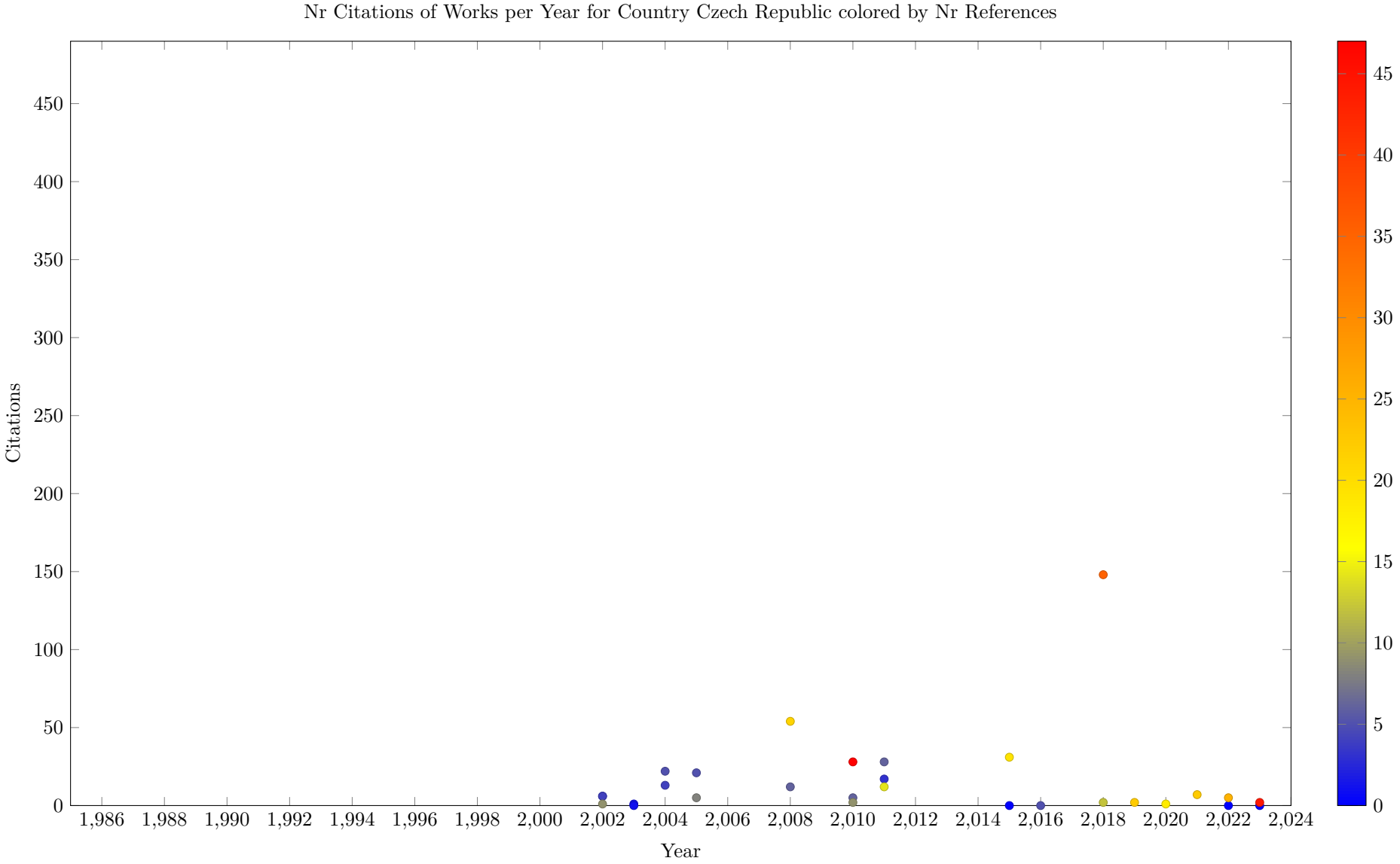
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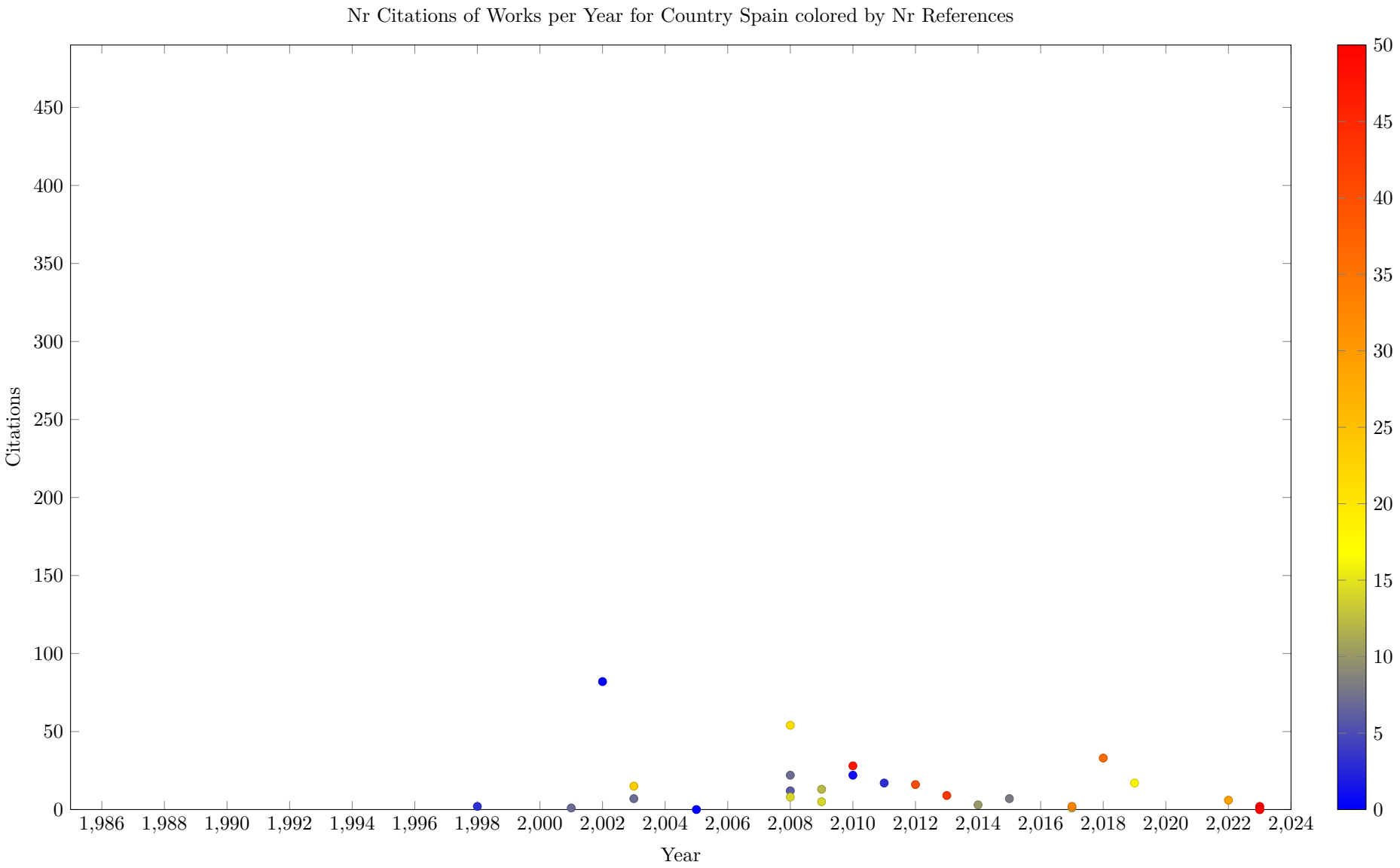
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Nr Citations of Works per Year for Country Ireland colored by Nr References
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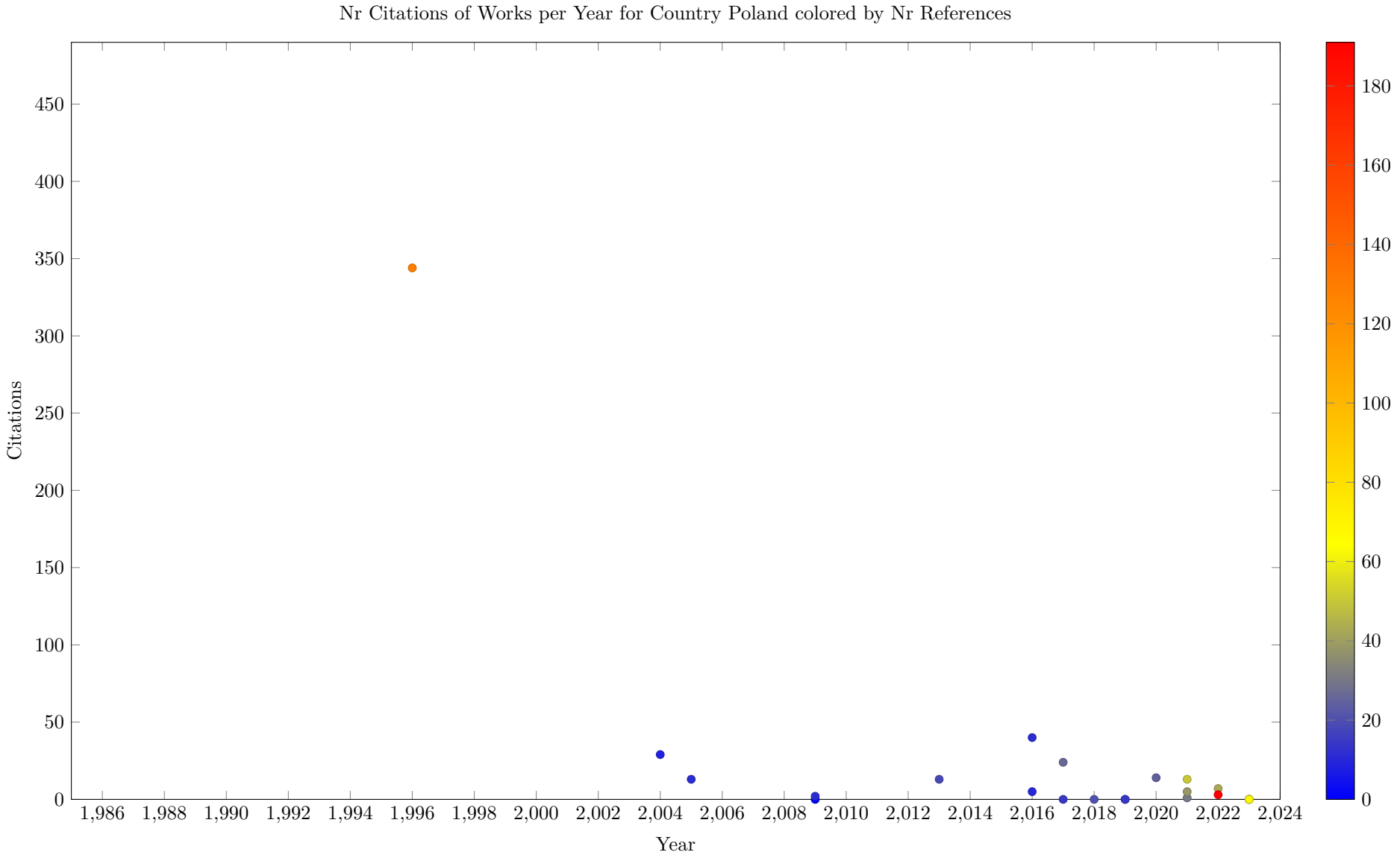
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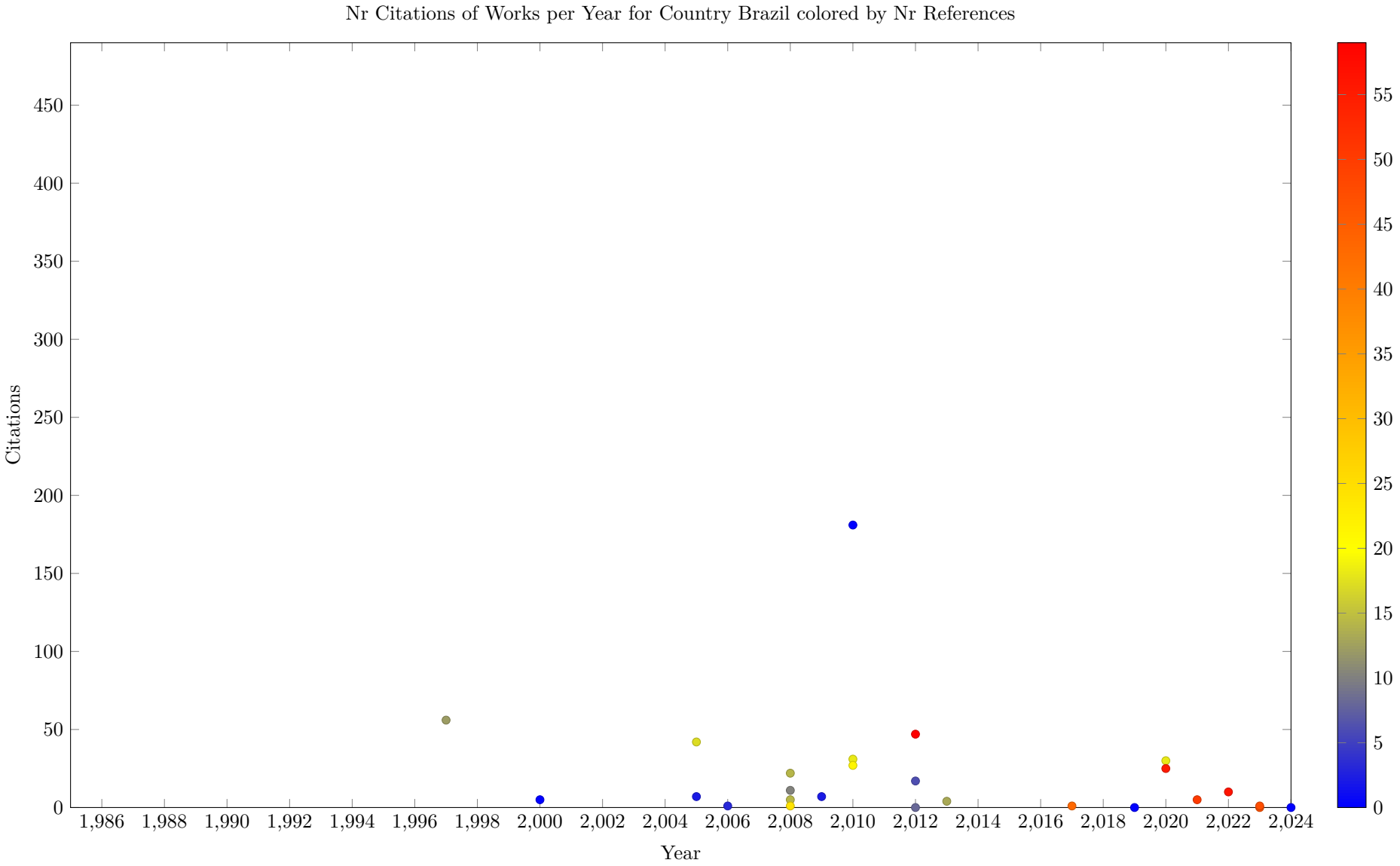
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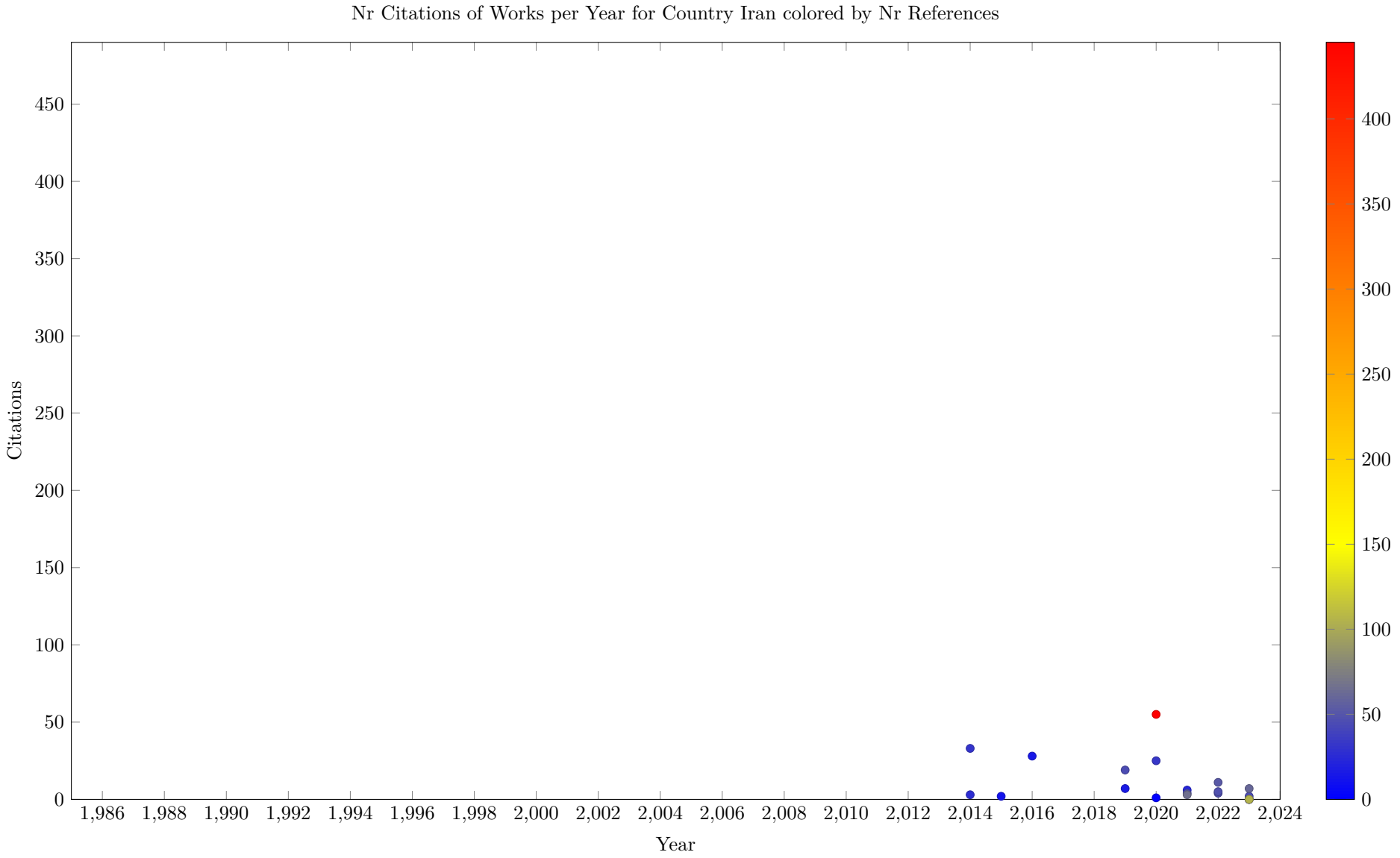
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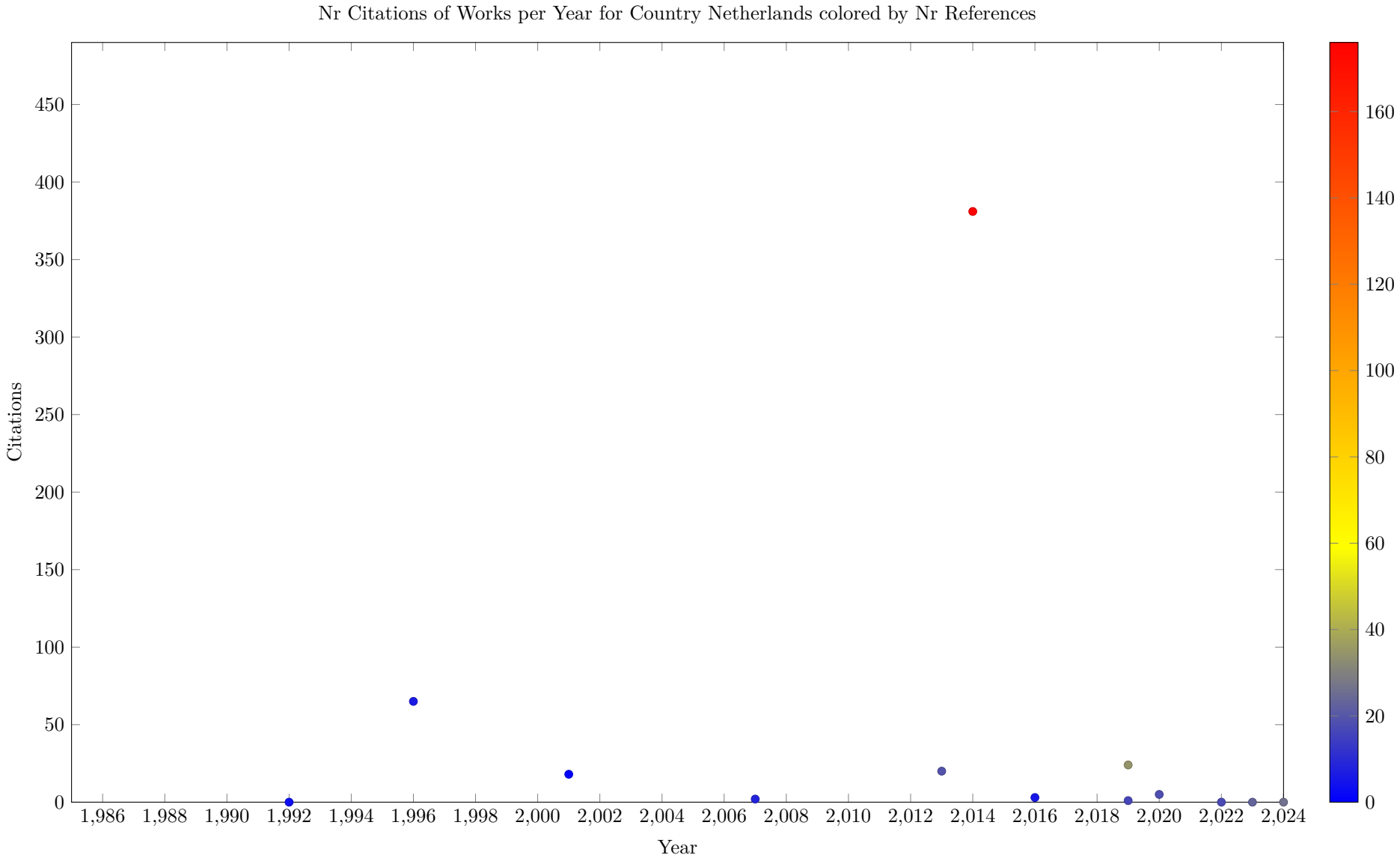
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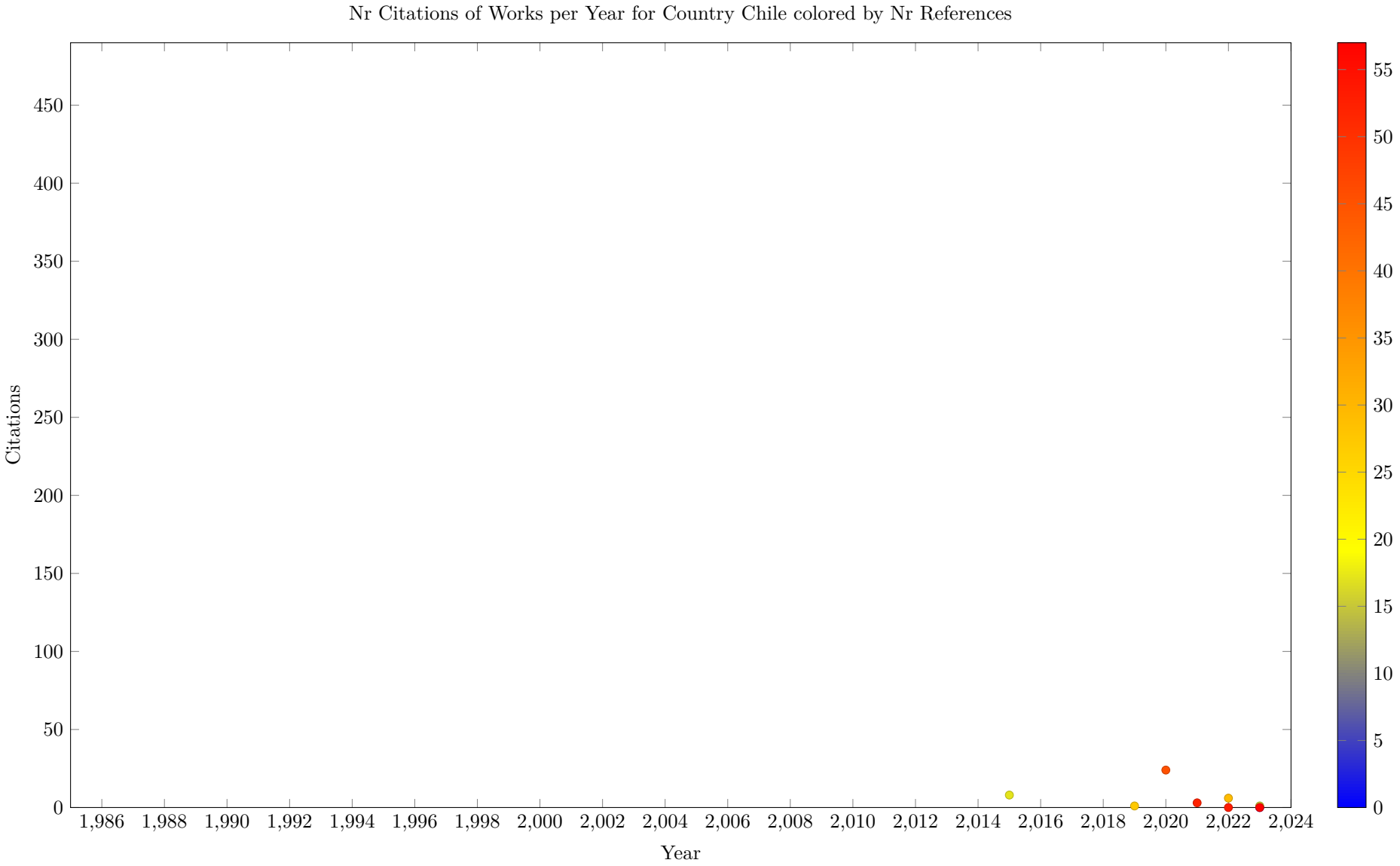
Nr Citations of Works per Year for Country Chile colored by Nr References
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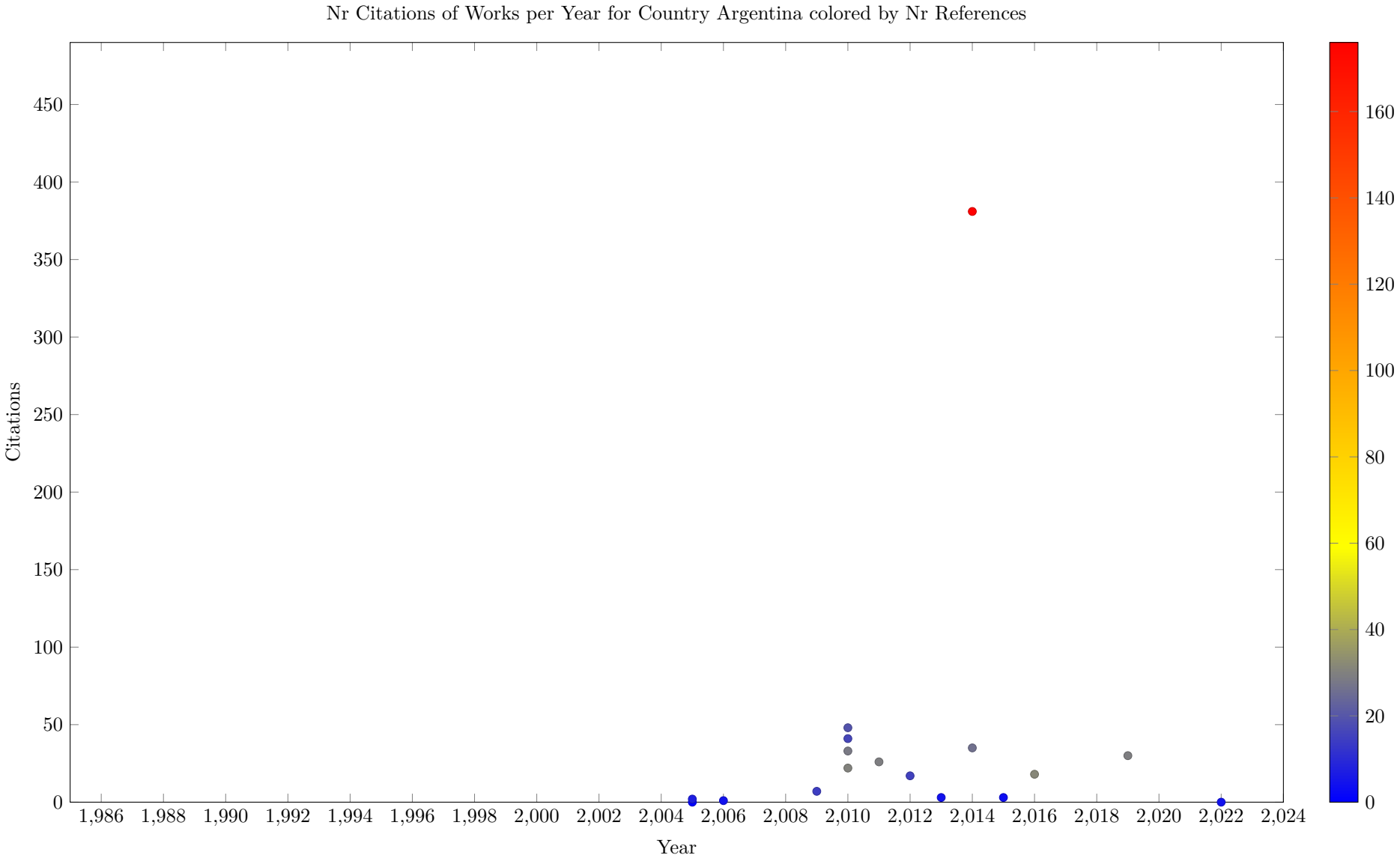
Nr Citations of Works per Year for Country Argentina colored by Nr References
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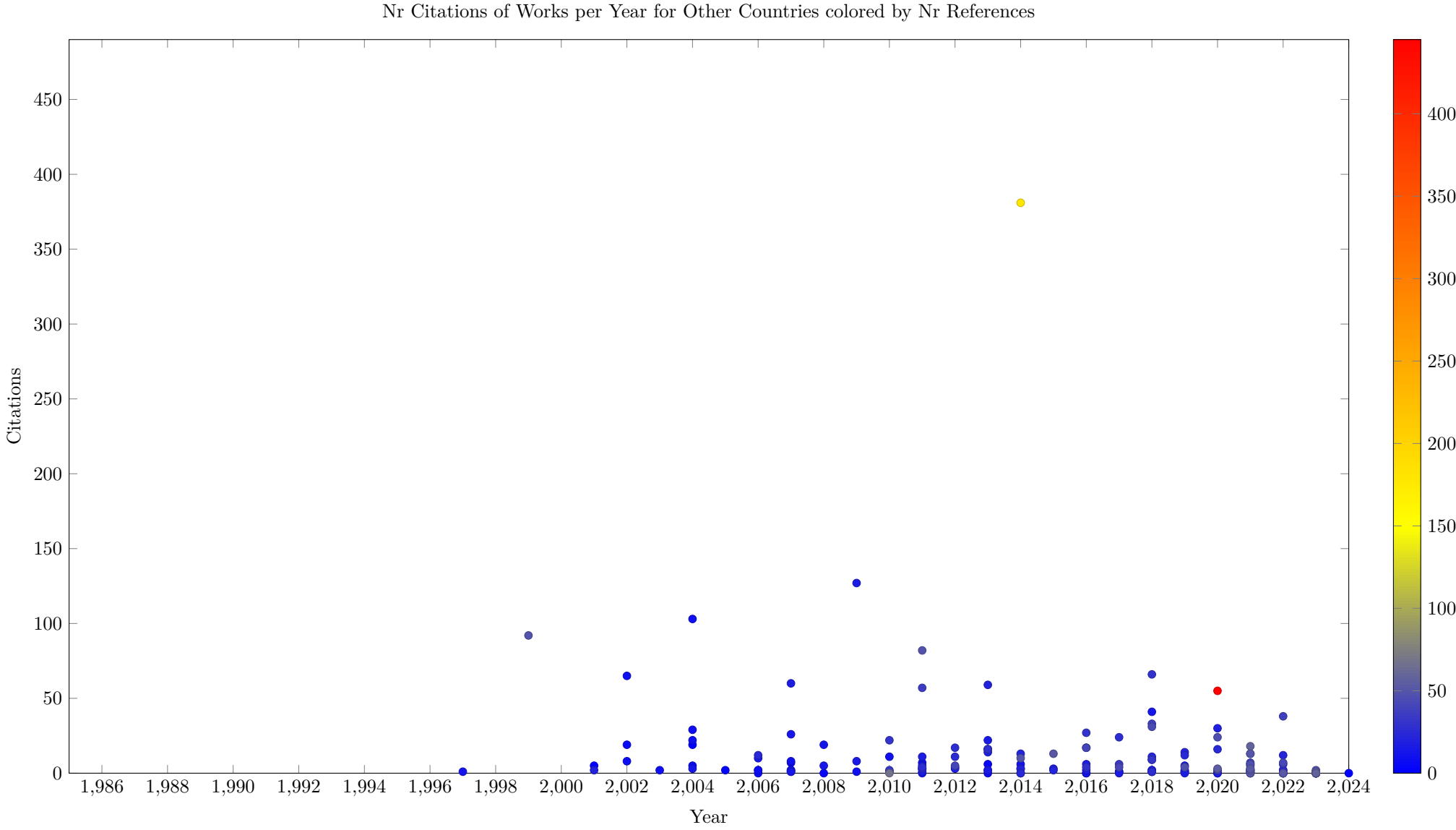
Nr Citations of Works per Year for Other Countries colored by Nr References
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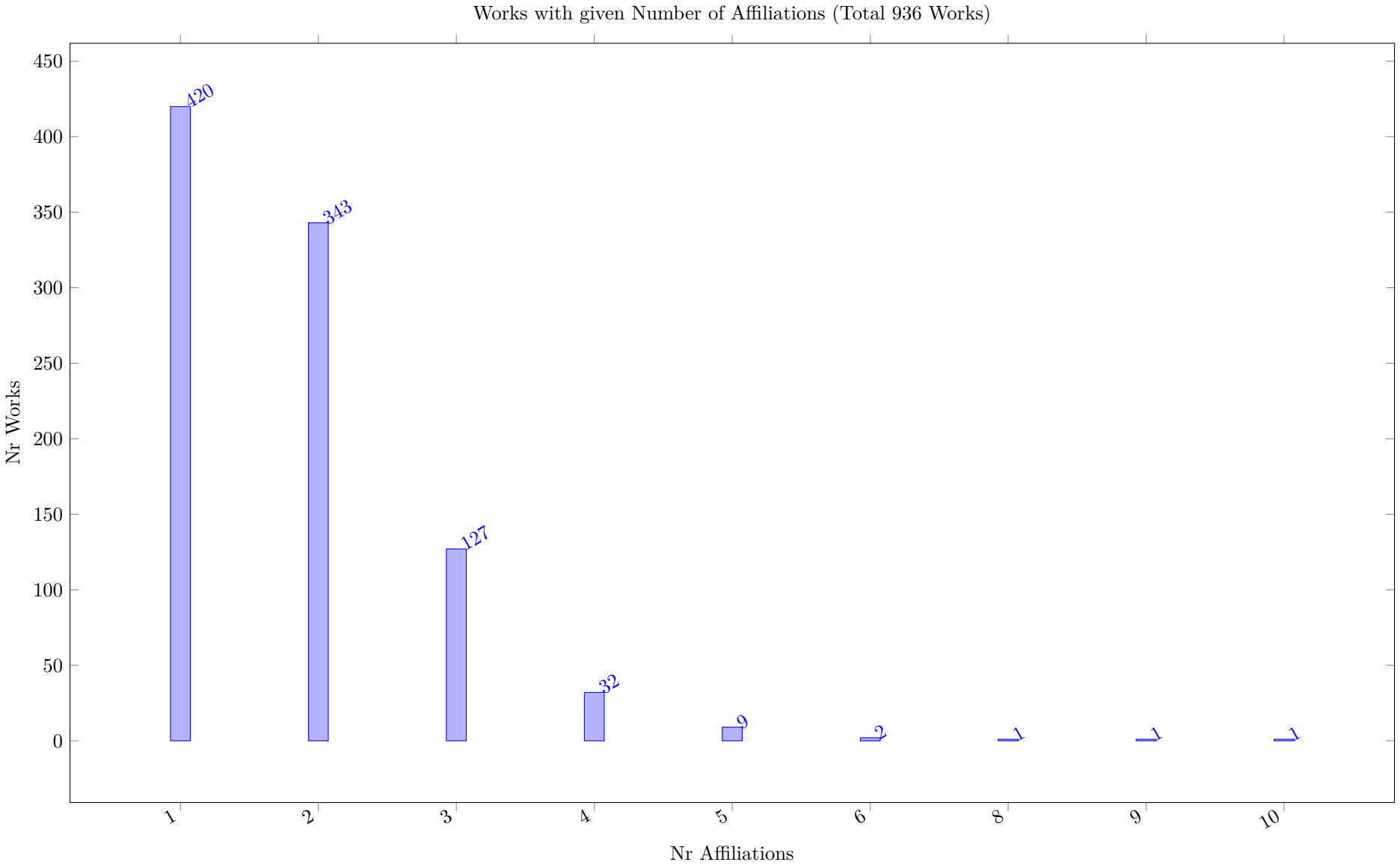
4 Collaborations

This section shows data about collaborations between multiple affiliations for the same work. This is based on Scopus data, which associates the affiliation with the work, not with each author of the work. The analysis excludes background work.



The following heatmap is not complete. It needs a symmetric option to count a collaboration for both A-B and B-A.

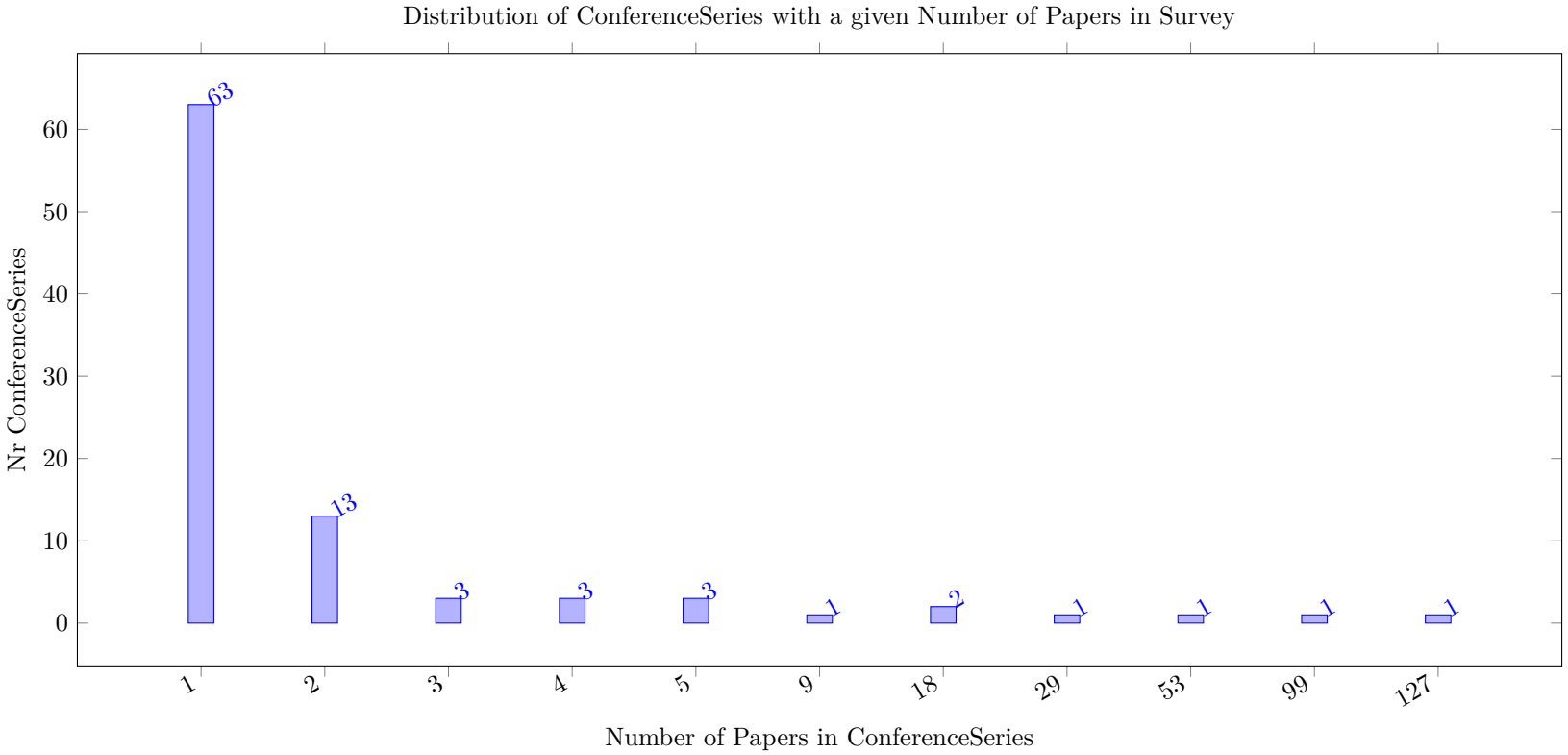
Table 7: Collaboration Data (Top 45 Inst by Decreasing Collab Fraction)

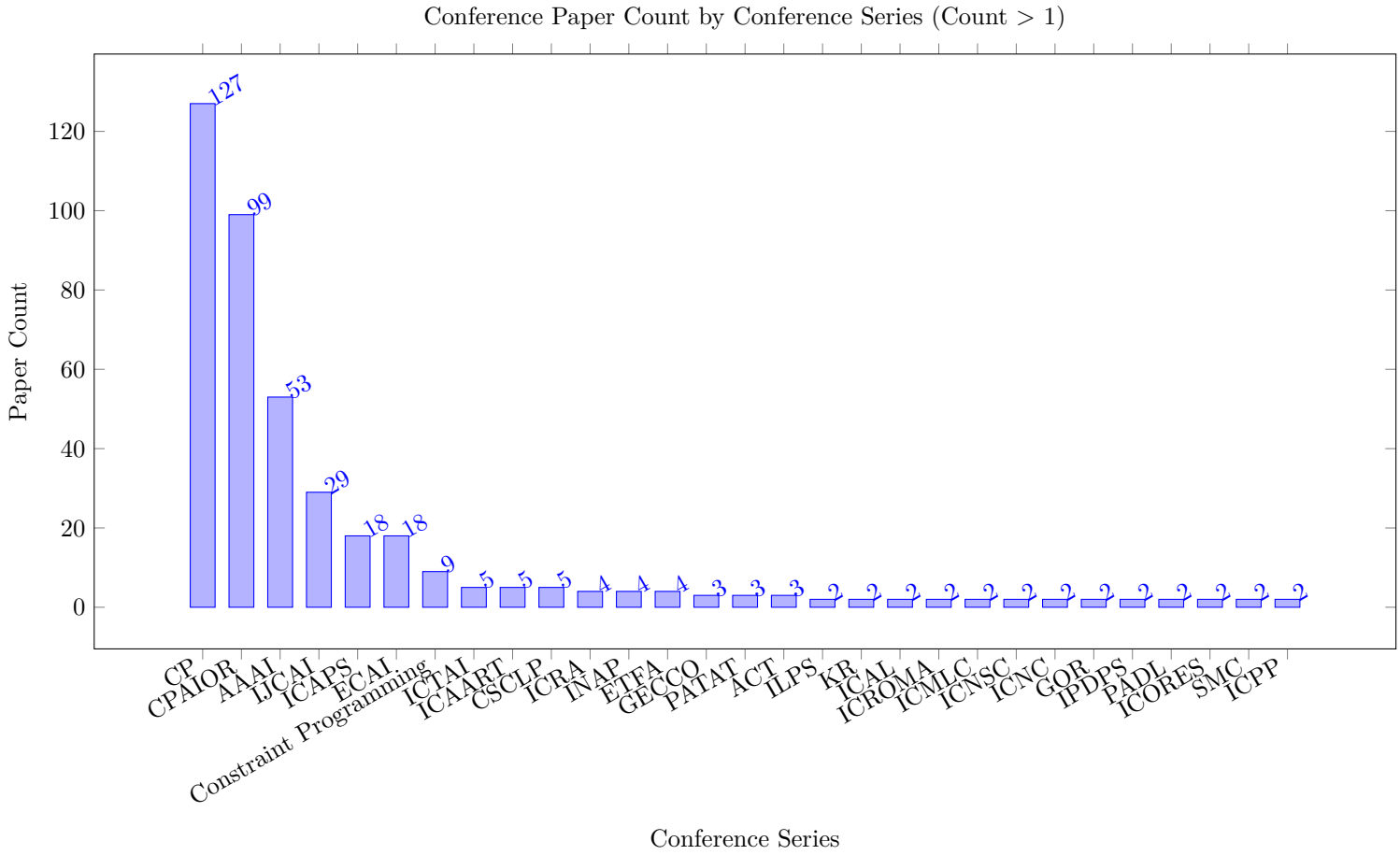
Inst	Nr Works	Collab Count	Domestic Collab	International Collab	Collab Fraction	Domestic Fraction	International Fraction	Collab Percentage	International Percentage
University of Toronto, Toronto, Canada	45	43	18	25	28.00	8.50	19.50	62.22	43.33
Université de Toulouse, Toulouse, France	30	40	20	20	23.00	15.83	7.17	76.67	23.89
University of Melbourne, Melbourne, Australia	28	34	23	11	22.00	15.00	7.00	78.57	25.00
Commonwealth Scientific and Industrial Research Organisation, Canberra, Australia	20	37	25	12	20.00	15.33	4.67	100.00	23.33
Monash University, Clayton, Australia	22	28	19	9	19.00	13.50	5.50	86.36	25.00
University College Cork, Cork, Ireland	23	31	6	25	17.00	1.76	15.24	73.91	66.25
Alma Mater Studiorum Università di Bologna, Bologna, Italy	38	26	6	20	16.00	3.83	12.17	42.11	32.02
Laboratoire d'Analyse et d'Architecture des Systemes, Toulouse, France	17	23	18	5	16.00	13.00	3.00	94.12	17.65
International Business Machines, Armonk, United States	26	20	2	18	15.00	2.00	13.00	57.69	50.00
The Royal Institute of Technology (KTH), Stockholm, Sweden	15	25	18	7	14.00	10.67	3.33	93.33	22.22
IMT Atlantique, Nantes, France	17	15	5	10	13.00	4.00	9.00	76.47	52.94
RISE, Swedish Institute of Computer Science, Kista, Sweden	14	16	5	11	12.00	4.00	8.00	85.71	57.14
CNRS Centre National de la Recherche Scientifique, Paris, France	14	14	9	5	10.00	7.00	3.00	71.43	21.43
Tepper School of Business, Pittsburgh, United States	23	19	7	12	10.00	3.33	6.67	43.48	28.99
Polytechnique Montréal, Montreal, Canada	15	11	7	4	9.00	6.50	2.50	60.00	16.67
Technische Universität Wien, Vienna, Austria	12	10	6	4	9.00	6.00	3.00	75.00	25.00
Charles University, Prague, Czech Republic	20	12	5	7	9.00	4.50	4.50	45.00	22.50
Université Catholique de Louvain, Louvain-la-Neuve, Belgium	19	12	2	10	9.00	1.33	7.67	47.37	40.35
Rotman School of Management, Toronto, Canada	8	19	15	4	8.00	6.17	1.83	100.00	22.92
University of Connecticut, Storrs, United States	8	12	8	4	8.00	5.83	2.17	100.00	27.08
Universidade de São Paulo, Sao Paulo, Brazil	8	9	5	4	7.00	4.50	2.50	87.50	31.25
Dokuz Eylül Üniversitesi, Izmir, Turkey	9	8	6	2	7.00	5.00	2.00	77.78	22.22
Universitat Politècnica de València, Valencia, Spain	13	10	1	9	7.00	1.00	6.00	53.85	46.15
Politechnika Koszalinska, Koszalin, Poland	8	11	8	3	7.00	5.00	2.00	87.50	25.00
Zuse Institute Berlin, Berlin, Germany	11	9	6	3	7.00	4.50	2.50	63.64	22.73
Université d'Avignon et des Pays du Vaucluse, Avignon, France	8	10	8	2	7.00	5.00	2.00	87.50	25.00
Bouygues, Paris, France	10	8	6	2	7.00	5.00	2.00	70.00	20.00
Université de Maroua, Maroua, Cameroon	6	10	6	4	6.00	3.67	2.33	100.00	38.89
ABB Corporate Research, Vasteras, Vasteras, Sweden	6	12	10	2	6.00	5.00	1.00	100.00	16.67
Izmir Ekonomi Universitesi, Izmir, Turkey	8	12	5	7	6.00	3.50	2.50	75.00	31.25
Universidad Nacional del Litoral, Santa Fe, Argentina	16	14	4	10	6.00	4.00	2.00	37.50	12.50
Magyar Tudomanyos Akademia, Budapest, Hungary	9	7	1	6	6.00	1.00	5.00	66.67	55.56
University of Windsor, Windsor, Canada	6	13	11	2	6.00	5.17	0.83	100.00	13.89
Brown University, Providence, United States	8	13	7	6	6.00	4.53	1.47	75.00	18.33
Technische Universität Berlin, Berlin, Germany	6	13	5	8	5.00	3.50	1.50	83.33	25.00
Université Grenoble Alpes, Saint Martin d'Heres, France	5	8	7	1	5.00	4.67	0.33	100.00	6.67
National University of Singapore, Singapore City, Singapore	5	7	1	6	5.00	0.50	4.50	100.00	90.00
Université Laval, Quebec, Canada	10	10	3	7	5.00	2.00	3.00	50.00	30.00
Czech Institute of Informatics, Robotics and Cybernetics, Prague, Czech Republic	5	7	3	4	5.00	2.50	2.50	100.00	50.00
University of Tehran, Tehran, Iran	7	7	1	6	5.00	1.00	4.00	71.43	57.14
École des Mines de Saint-Étienne, Saint-Etienne, France	5	12	8	4	5.00	4.00	1.00	100.00	20.00
Aalborg University, Aalborg, Denmark	5	8	0	8	5.00	0.00	5.00	100.00	100.00
Sorbonne Université, Paris, France	6	7	6	1	5.00	4.00	1.00	83.33	16.67
Universite Catholique de L'Ouest, Angers, France	6	10	10	0	5.00	5.00	0.00	83.33	0.00
Compagnie IBM France, Bois-Colombes, France	8	7	3	4	5.00	2.00	3.00	62.50	37.50

Table 8: Heat Map based on Collaboration between Institutions (Integer Count)

From/To	Total	France	United States	Canada	China	Australia	Sweden	Germany	Chile	United Kingdom	Ireland	Italy	Belgium	Turkey	Poland	Netherlands	Austria	Brazil	Spain	Argentina	Iran	Norway	Tunisia	Czech Republic	South Korea	Cameroon	Colombia	Pakistan	Singapore	Luxembourg	Russian Federation	Greece	Denmark	Mexico	Taiwan	Indonesia	Saudi Arabia	Hong Kong	Serbia	Japan	Switzerland	Macao	Portugal	Algeria	Egypt	Hungary	Finland	Iraq	Iceland	Israel	Sri Lanka	Other
Total		153	117	95	89	67	62	62	53	40	37	32	29	27	23	21	17	17	15	14	13	12	11	10	10	9	9	8	8	7	7	7	6	5	4	4	4	4	4	4	4	3	3	3	3	2	1	1	1	1	
France	170	104	7	5	1	2	12	3	8	3	4	0	2	0	1	1	0	1	0	0	1	1	5	3	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	2	0	1	0	0	0	0	0	0
United States	158	8	59	12	6	4	7	4	3	1	14	4	9	2	0	8	0	2	0	3	3	0	0	0	1	0	0	0	0	2	0	0	1	1	0	0	0	1	0	0	0	0	1	0	0	0	1	0	1	0	0
China	83	1	6	1	61	0	0	0	0	5	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	3	0	0	0	0	0	0	0	0	0
Canada	77	2	1	58	2	0	0	6	0	0	1	1	2	1	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Australia	68	1	0	1	2	43	0	4	0	3	1	5	0	1	0	1	1	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Germany	65	2	9	1	0	6	1	27	0	1	2	1	0	0	0	3	1	2	0	2	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0	2
Chile	47	0	0	0	0	0	0	0	36	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	7	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Italy	39	2	2	0	2	4	2	2	1	4	1	11	2	1	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0
Sweden	34	2	0	0	0	27	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ireland	31	8	4	3	0	0	2	0	2	10	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Turkey	28	0	4	1	1	0	0	0	0	2	2	0	0	16	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Belgium	22	6	1	0	0	0	3	0	0	1	0	0	7	0	0	3	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Spain	20	0	0	1	0	0	0	2	5	0	0	2	0	0	0	0	0	2	6	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Austria	18	0	0	0	0	1	0	1	0	0	0	1	0	0	0	0	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
United Kingdom	18	3	1	0	0	0	1	0	0	7	0	1	1	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Czech Republic	17	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	4	0	2	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Poland	17	0	0	0	0	0	0	2	0	0	0	0	0	0	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Denmark	17	0	3	0	0	2	0	2	0	1	0	0	0	0	7	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Norway	16	6	0	0	0	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Portugal	15	0	3	0	0	0	0	1	0	2	0	0	4	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Singapore	14	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Brazil	13	1	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cameroon	13	0	0	2	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Iran	13	0	1	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Netherlands	13	0	4	0	1	2	0	1	0	0	0	0	0	0	0	3	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Taiwan	12	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	4	4	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Greece	11	1	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pakistan	10	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	4	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0
South Korea	10	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Russian Federation	9	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hungary	8	1	0	3	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
Argentina	6	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
United Arab Emirates	6	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Switzerland	6	0	0	0	0	0	4	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tunisia	5	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Hong Kong	4	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Japan	4	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0
Egypt	4	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0
India	3	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Saudi Arabia	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Israel	2	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Thailand	2	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Finland	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Lebanon	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mexico	2	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other		0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	1	0	0	0	1	0	0	0	

5 Conference Papers by Most Common Conference Series




Conference Paper Count by Conference Series (Count > 1)
Paper Count
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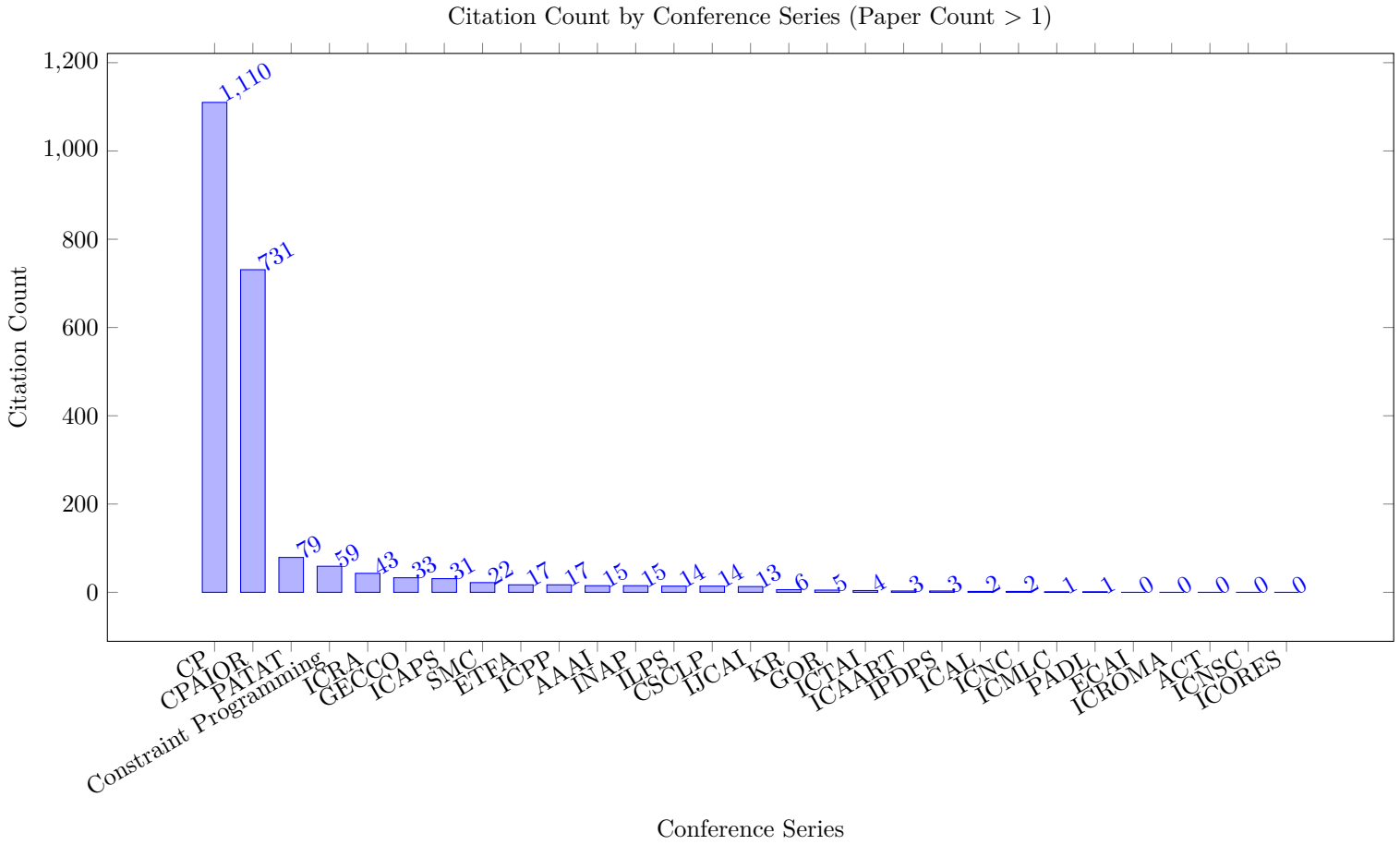
40
60
80
100
120
127
99
53
29
18
18
9
5
5
5
4
4
4
3
3
3
2
2
2
2
2
2
2
2
2
2
2
2
2
CP
CPAIOR
AAAI
IJCAI
ICAPS
ECAI
Constraint Programming
ICTAI
ICAART
CSCLP
ICRA
INAP
ETFA
GECCCO
PATAT
ACT
ILPS
KR
ICAL
ICROMA
ICMLC
ICNSC
ICNC
GOR
IPDPS
PADL
ICORES
SMC
ICPP
Conference Series


Citation Count by Conference Series (Paper Count > 1)
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800
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400
200
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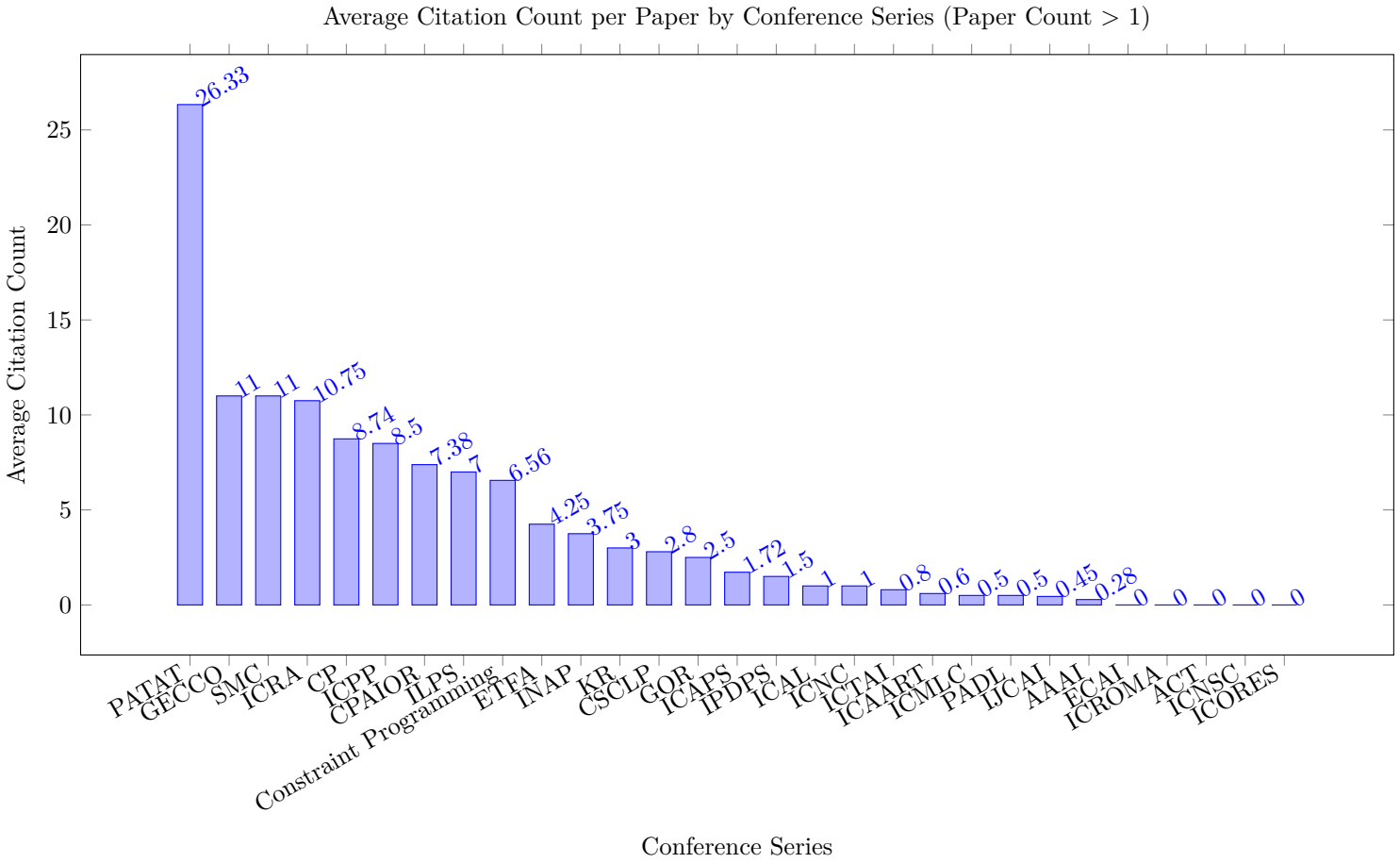
79
59
43
33
31
22
17
17
15
15
14
14
13
6
5
4
3
3
2
2
1
1
0
0
0
0
0
CP
CPAIOR
PATAT
Constraint Programming
ICRA
GECCO
ICAPS
SMC
ETFA
ICPP
AAAI
INAP
ILPS
CSCLP
IJCAI
KR
GOR
ICTAI
ICAART
IPDPS
ICAL
ICNC
ICMLC
PADL
ECAI
ICROMA
ACT
ICNSC
ICORES
Conference Series


Average Citation Count per Paper by Conference Series (Paper Count > 1)
Average Citation Count
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10
15
20
25
26.33
11
11
10.75
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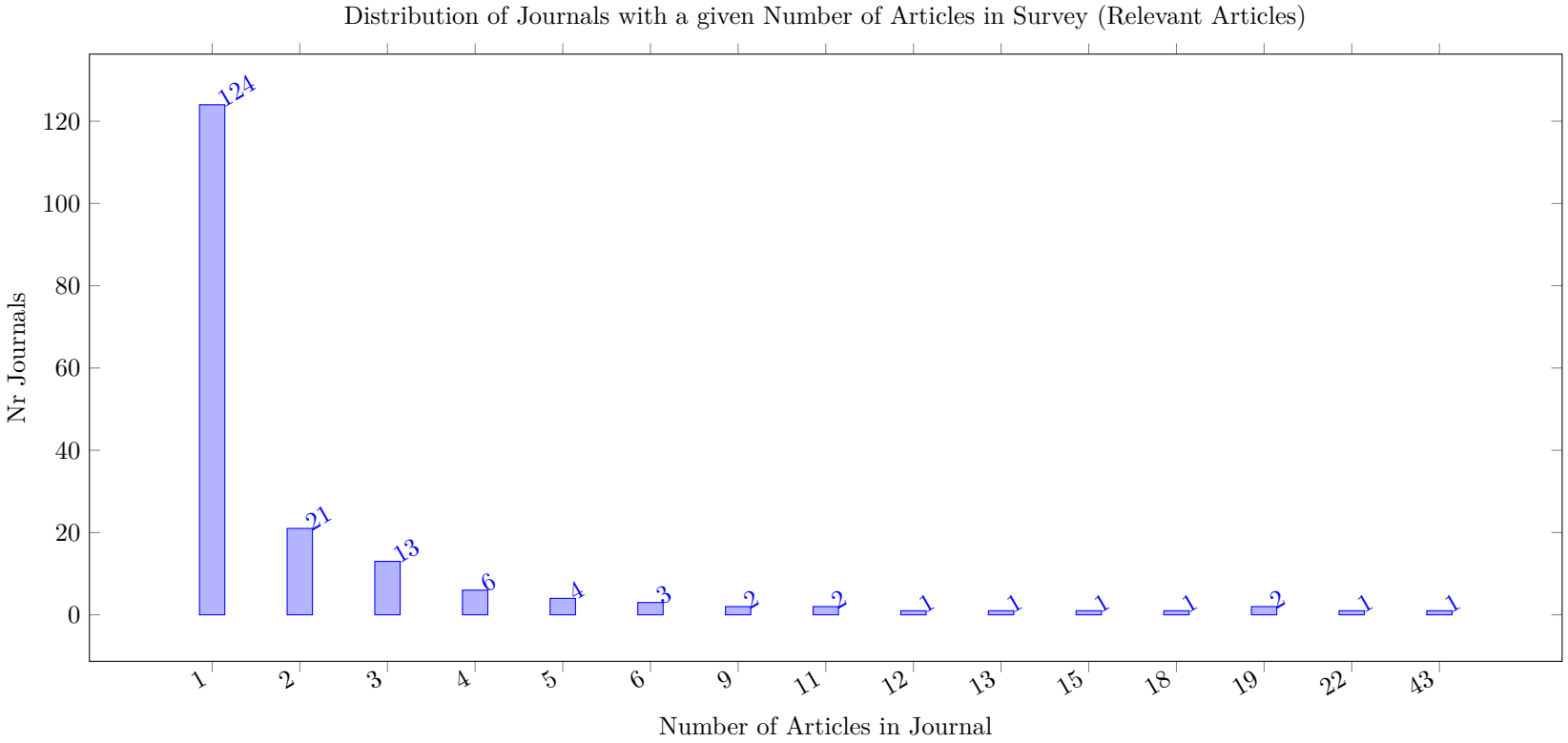
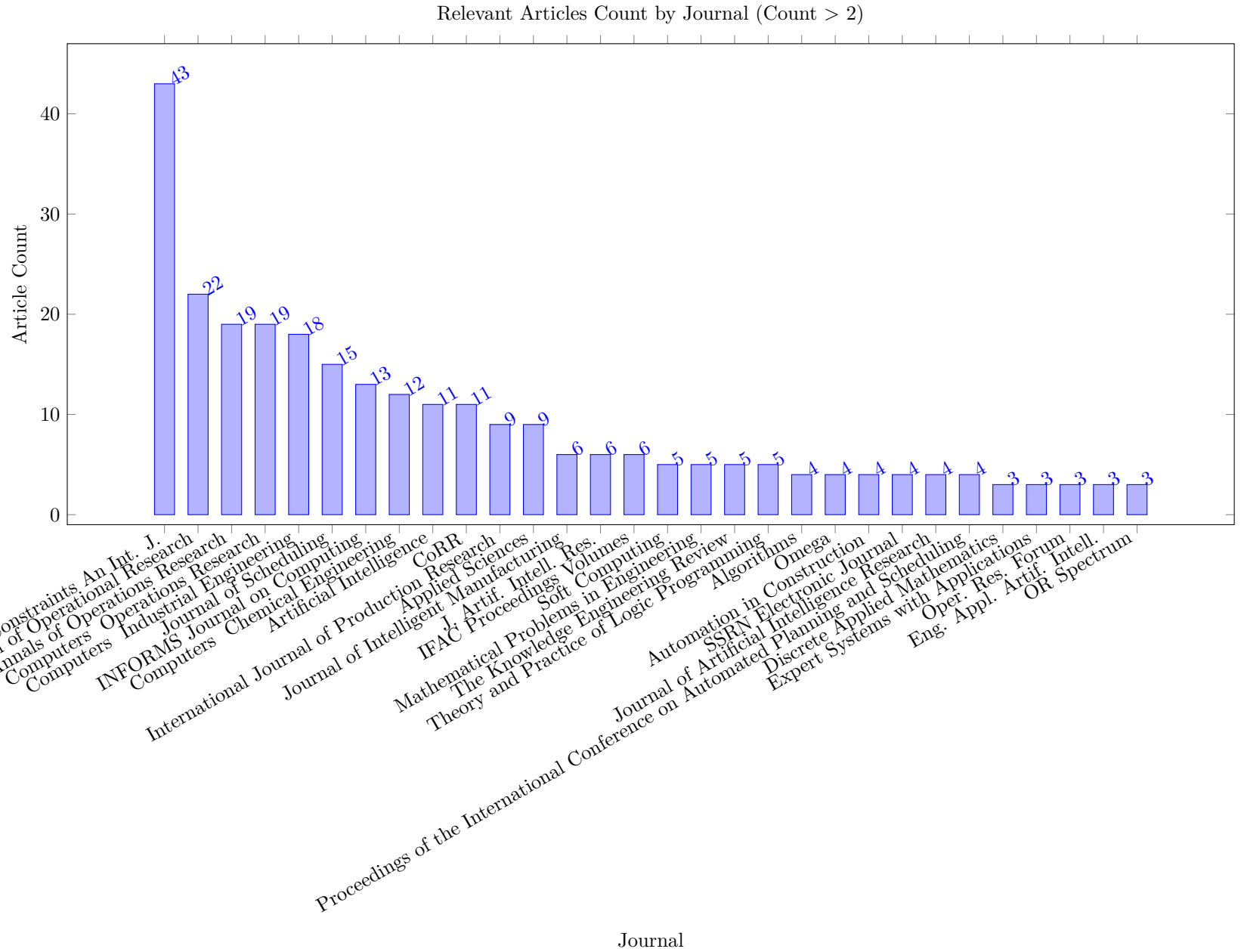
8.5
7.38
7
6.56
4.25
3.75
3
2.8
2.5
1.72
1.5
1
1
0.8
0.6
0.5
0.5
0.45
0.28
0
0
0
0
0
PATAT
GECCO
SMC
ICRA
CP
ICPP
CPAIOR
ILPS
Constraint Programming
ETFA
INAP
KR
CSCLP
GOR
ICAPS
IPDPS
ICAL
ICNC
ICTAI
ICAART
ICMLC
PADL
IJCAI
AAAI
ECAI
ICROMA
ACT
ICNSC
ICORES
Conference Series

6 Journal Articles by Most Common Journals

6.1 Relevant Articles




Relevant Articles Count by Journal (Count > 2)
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40
43
22
19
19
18
15
13
12
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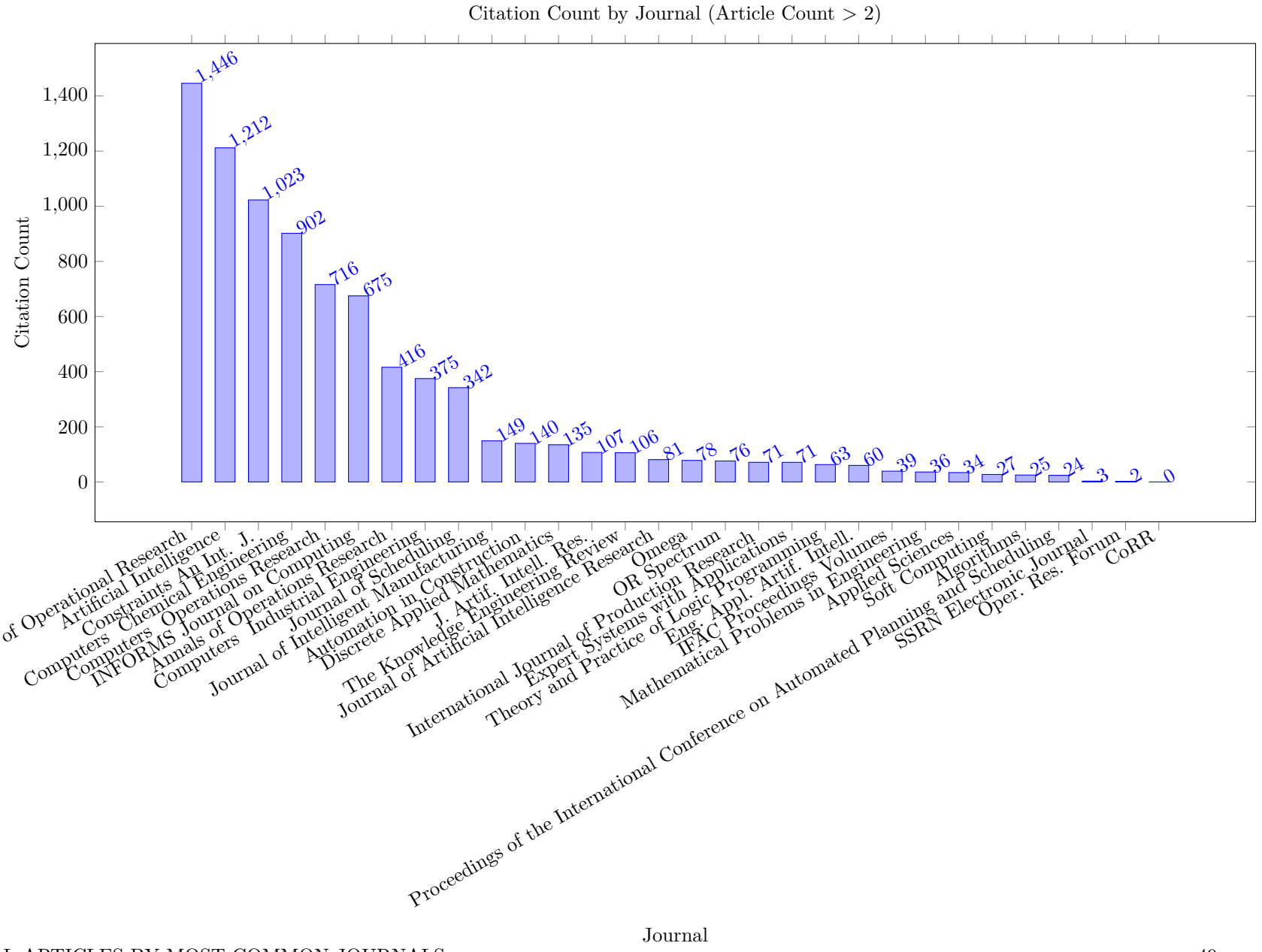
9
6
6
6
5
5
5
5
4
4
4
4
4
4
3
3
3
3
3
Constraints An Int. J.
European Journal of Operational Research
Annals of Operations Research
Computers Operations Research
Computers Operations Research
Industrial Engineering
INFORMS Journal on Computing
Computers Chemical Engineering
Artificial Intelligence
CoRR
International Journal of Production Research
Applied Sciences
Journal of Intelligent Manufacturing
J. Artif. Intell. Res.
IFAC Proceedings Volumes
Mathematical Problems in Engineering
Soft Computing
The Knowledge Engineering Review
Theory and Practice of Logic Programming
Algorithms
Omega
Automation in Construction
SSRN Electronic Journal
Journal of Artificial Intelligence Research
Discrete Applied Mathematics
Proceedings of the International Conference on Automated Planning and Scheduling
Expert Systems with Applications
Oper. Res. Forum
Eng. Appl. Artif. Intell.
OR Spectrum
Journal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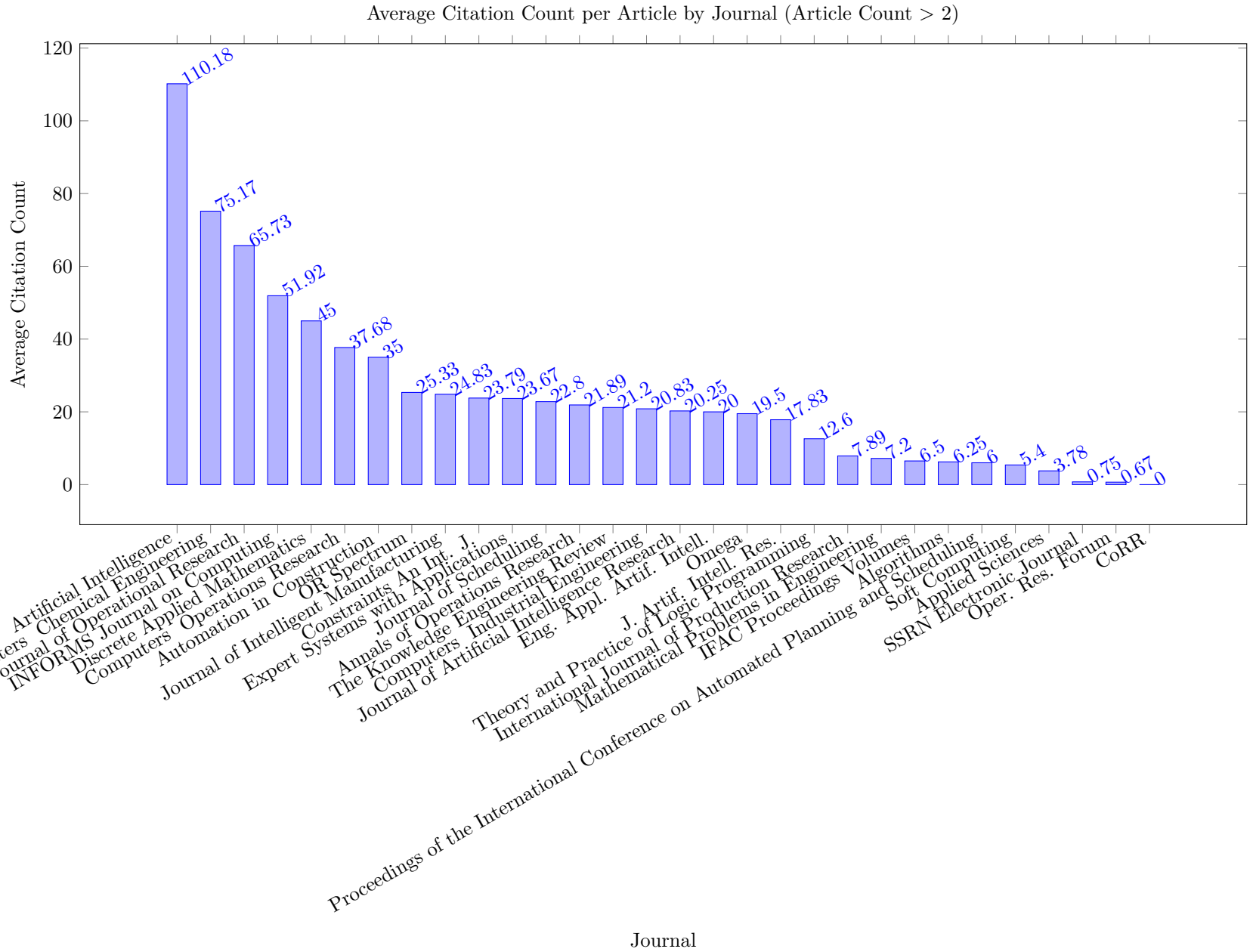
149
140
135
107
106
81
78
76
71
71
63
60
39
36
34
27
25
24
3
2
0
European Journal of Operational Research
Artificial Intelligence
Constraints An Int. J.
Computers Chemical Engineering
Computers Operations Research
INFORMS Journal on Computing
Annals of Operations Research
Computers Industrial Engineering
Journal of Intelligent Manufacturing
Journal of Scheduling
Automation in Construction
Discrete Applied Mathematics
J. Artif. Intell. Res.
The Knowledge Engineering Review
Journal of Artificial Intelligence Research
Omega
OR Spectrum
International Journal of Production Research
Expert Systems with Applications
Theory and Practice of Logic Programming
Eng. Appl. Artif. Intell.
IFAC Proceedings Volumes
Mathematical Problems in Engineering
Applied Sciences
Soft Computing
Algorithms
Proceedings of the International Conference on Automated Planning and Scheduling
SSRN Electronic Journal
Oper. Res. Forum
CoRR
Journal


Average Citation Count per Article by Journal (Article Count > 2)
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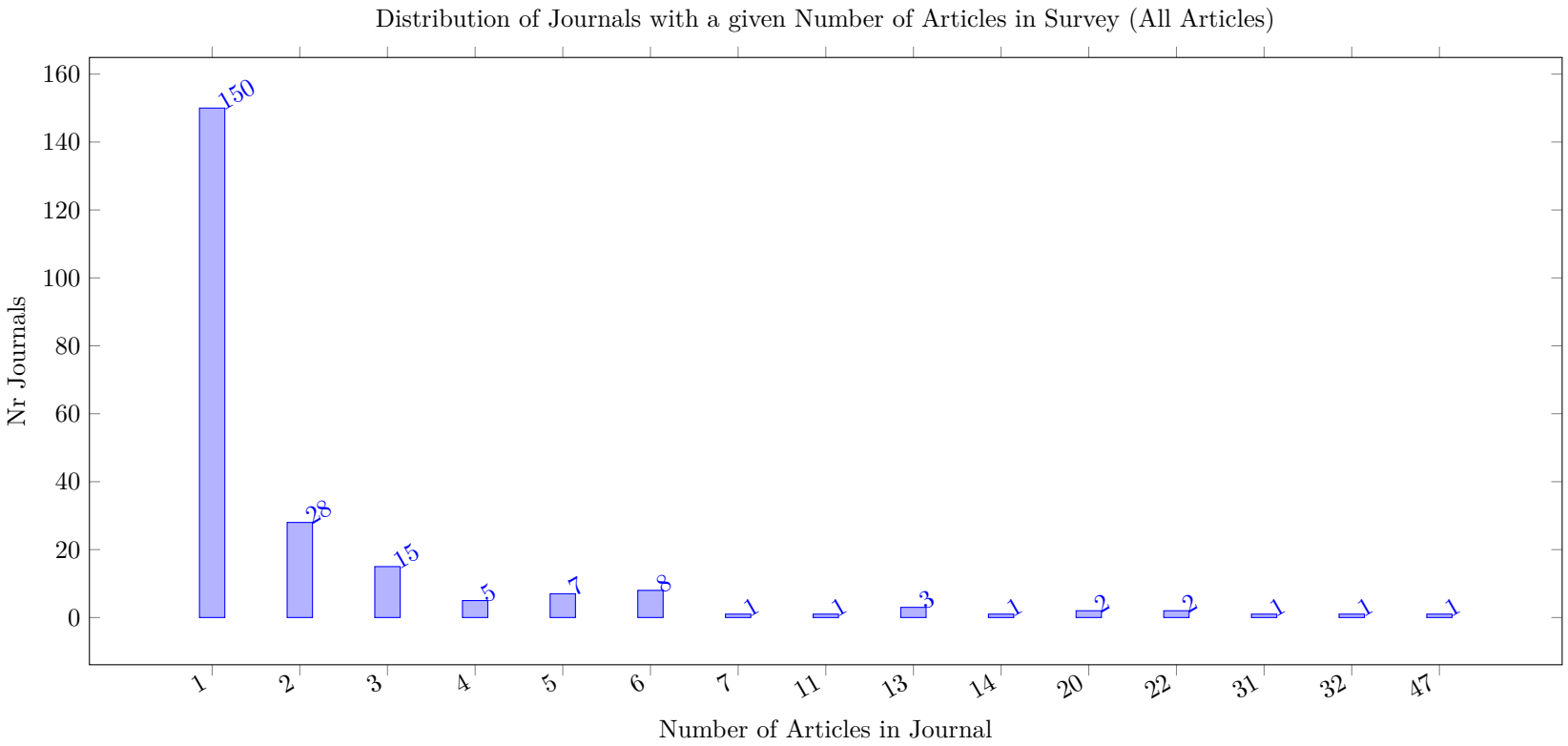
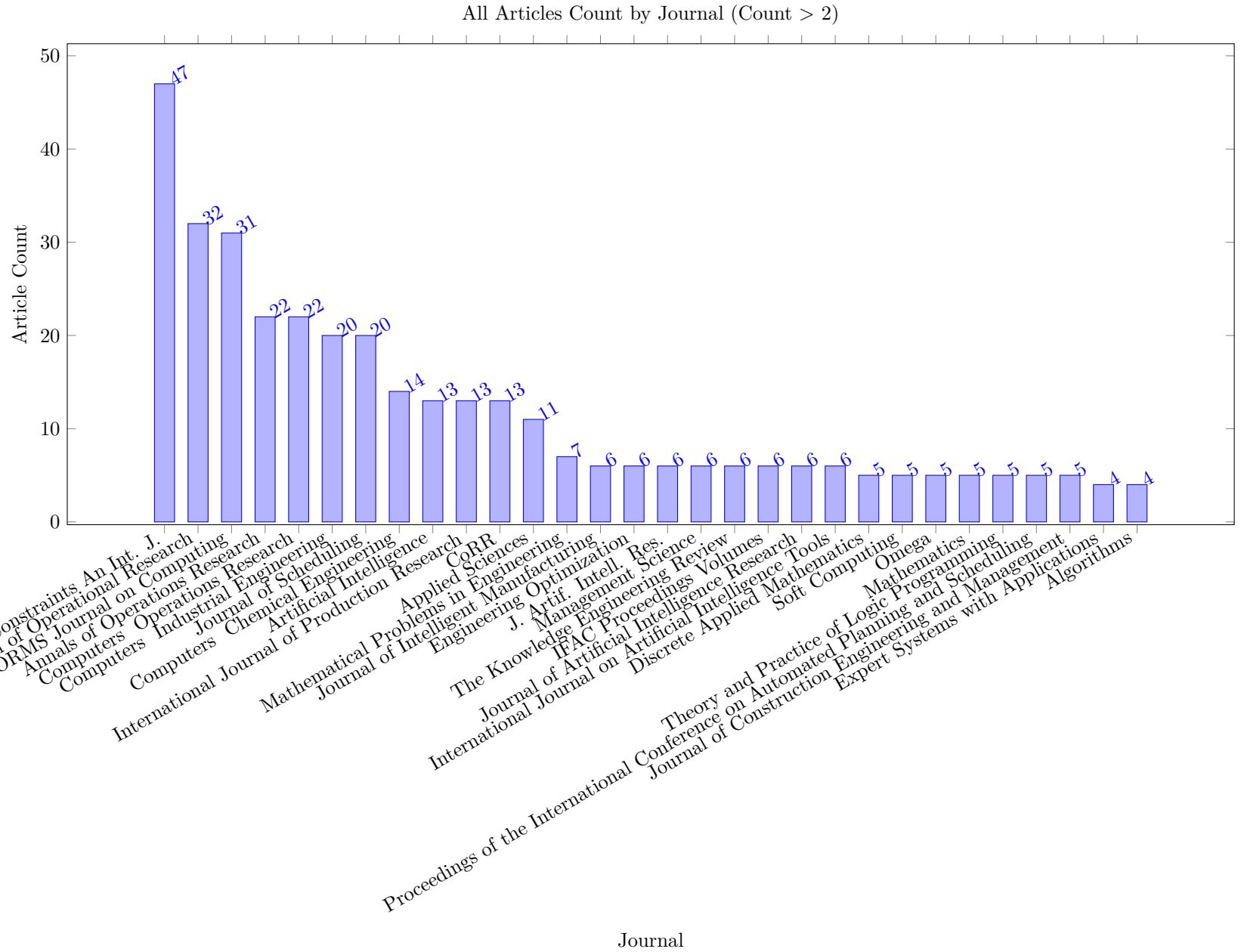
45
37.68
35
25.33
24.83
23.79
23.67
22.8
21.89
21.2
20.83
20.25
20
19.5
17.83
12.6
7.89
7.2
6.5
6.25
6
5.4
3.78
0.75
0.67
0
Artificial Intelligence
Computers Chemical Engineering
European Journal of Operational Research
INFORMS Journal on Computing
Discrete Applied Mathematics
Computers Operations Research
Automation in Construction
OR Spectrum
Journal of Intelligent Manufacturing
Constraints An Int. J.
Expert Systems with Applications
Journal of Scheduling
Annals of Operations Research
The Knowledge Engineering Review
Computers Industrial Engineering
Journal of Artificial Intelligence Research
Eng. Appl. Artif. Intell.
Omega
J. Artif. Intell. Res.
Theory and Practice of Logic Programming
International Journal of Production Research
Mathematical Problems in Engineering
IFAC Proceedings Volumes
Proceedings of the International Conference on Automated Planning and Scheduling
Algorithms
Soft Computing
Applied Sciences
SSRN Electronic Journal
Oper. Res. Forum
CoRR
Journal

6.2 All Articles




All Articles Count by Journal (Count > 2)
Article Count
Journal
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11
7
6
6
6
6
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6
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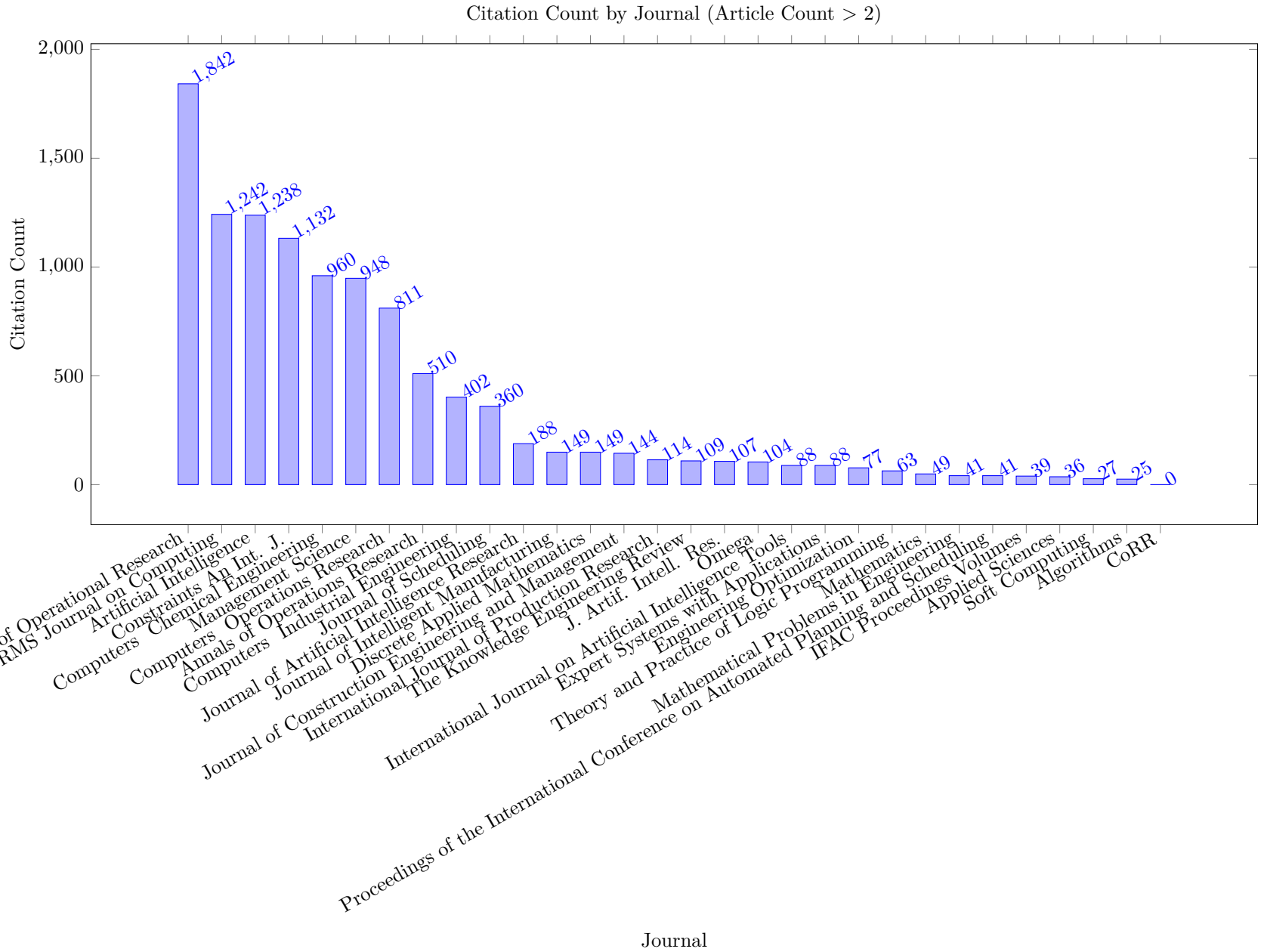
5
5
5
4
4
Constraints An Int. J.
European Journal of Operational Research
INFORMS Journal on Computing
Annals of Operations Research
Computers Operations Research
Industrial Engineering
Journal of Scheduling
Computers Chemical Engineering
Artificial Intelligence
International Journal of Production Research
CoRR
Applied Sciences
Mathematical Problems in Engineering
Journal of Intelligent Manufacturing
Engineering Optimization
J. Artif. Intell. Res.
Management Science
The Knowledge Engineering Review
IFAC Proceedings Volumes
Journal of Artificial Intelligence Research
International Journal on Artificial Intelligence Tools
Discrete Applied Mathematics
Soft Computing
Omega
Mathematics
Theory and Practice of Logic Programming
Proceedings of the International Conference on Automated Planning and Scheduling
Journal of Construction Engineering and Management
Expert Systems with Applications
Algorithms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360
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149
149
144
114
109
107
104
88
88
77
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49
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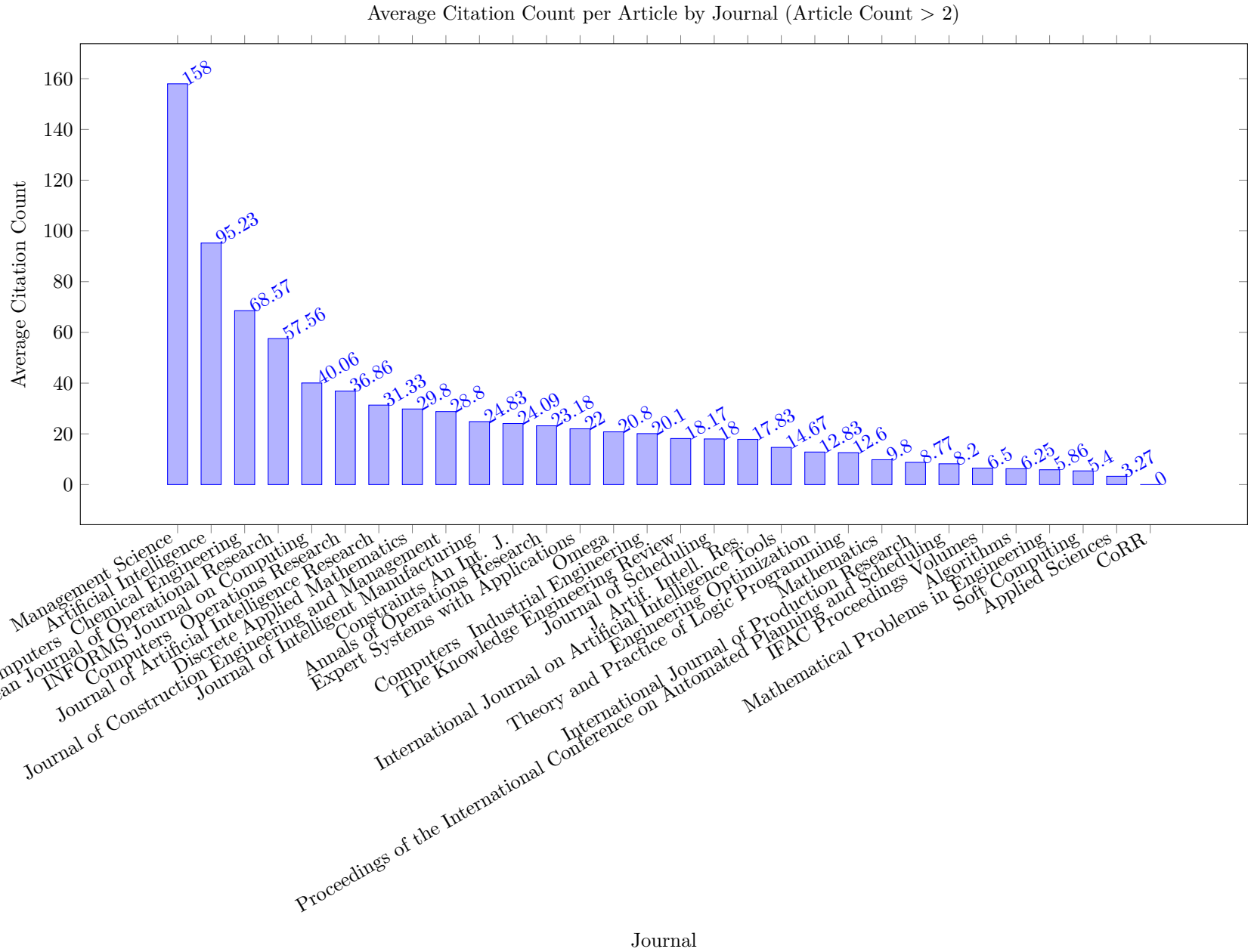
41
39
36
27
25
0
European Journal of Operational Research
INFORMS Journal on Computing
Artificial Intelligence
Constraints An Int. J.
Computers Chemical Engineering
Management Science
Annals of Operations Research
Computers Operations Research
Industrial Engineering
Journal of Scheduling
Journal of Artificial Intelligence Research
Journal of Intelligent Manufacturing
Discrete Applied Mathematics
Journal of Construction Engineering and Management
International Journal of Production Research
The Knowledge Engineering Review
J. Artif. Intell. Res.
Omega
International Journal on Artificial Intelligence Tools
Expert Systems with Applications
Theory and Practice of Logic Programming
Engineering Optimization
Mathematical Problems in Engineering
Mathematics
Applied Sciences
Soft Computing
Algorithms
CoRR
Proceedings of the International Conference on Automated Planning and Scheduling
IFAC Proceedings Volumes
Journal


Average Citation Count per Article by Journal (Article Count > 2)
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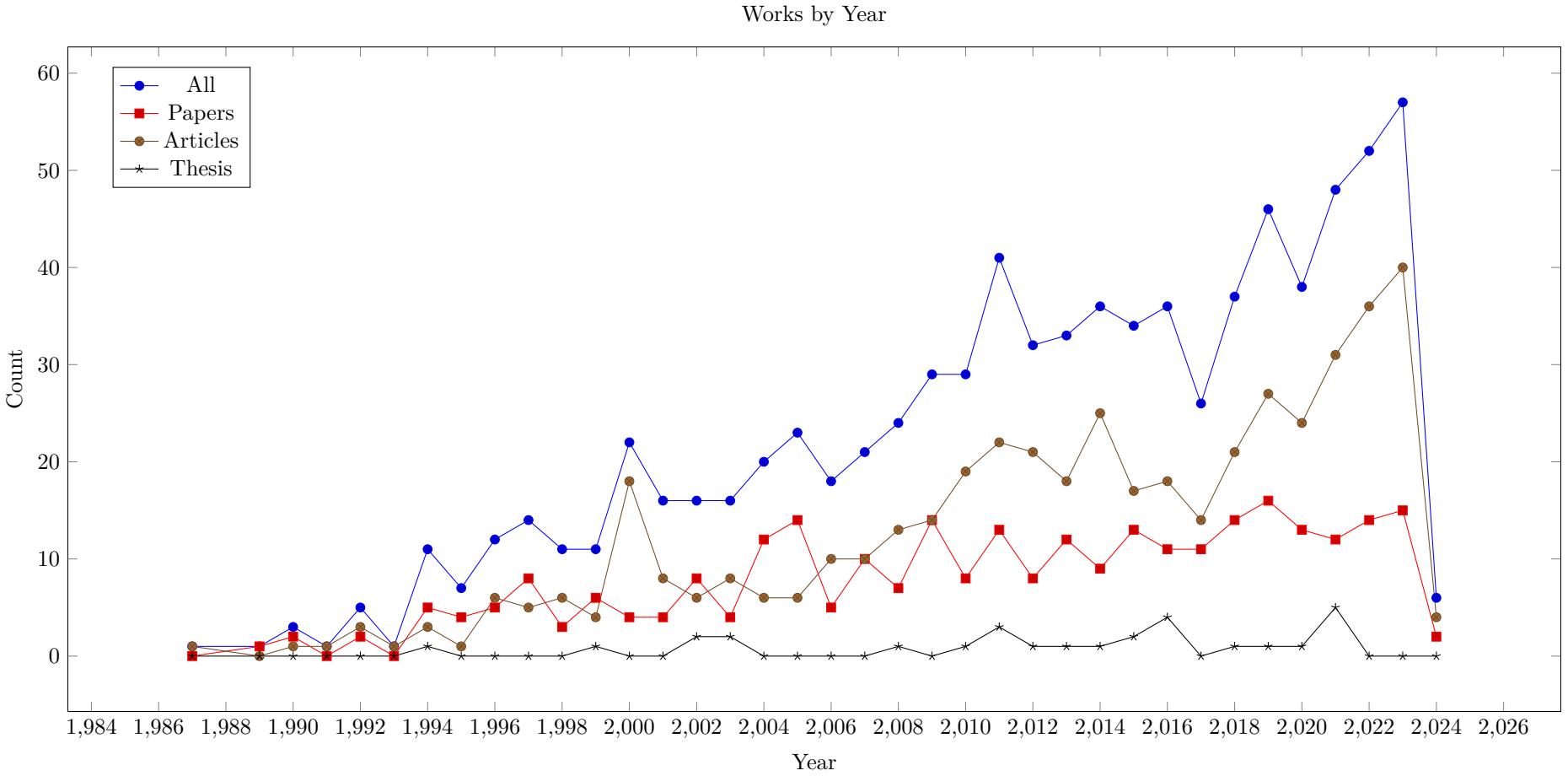
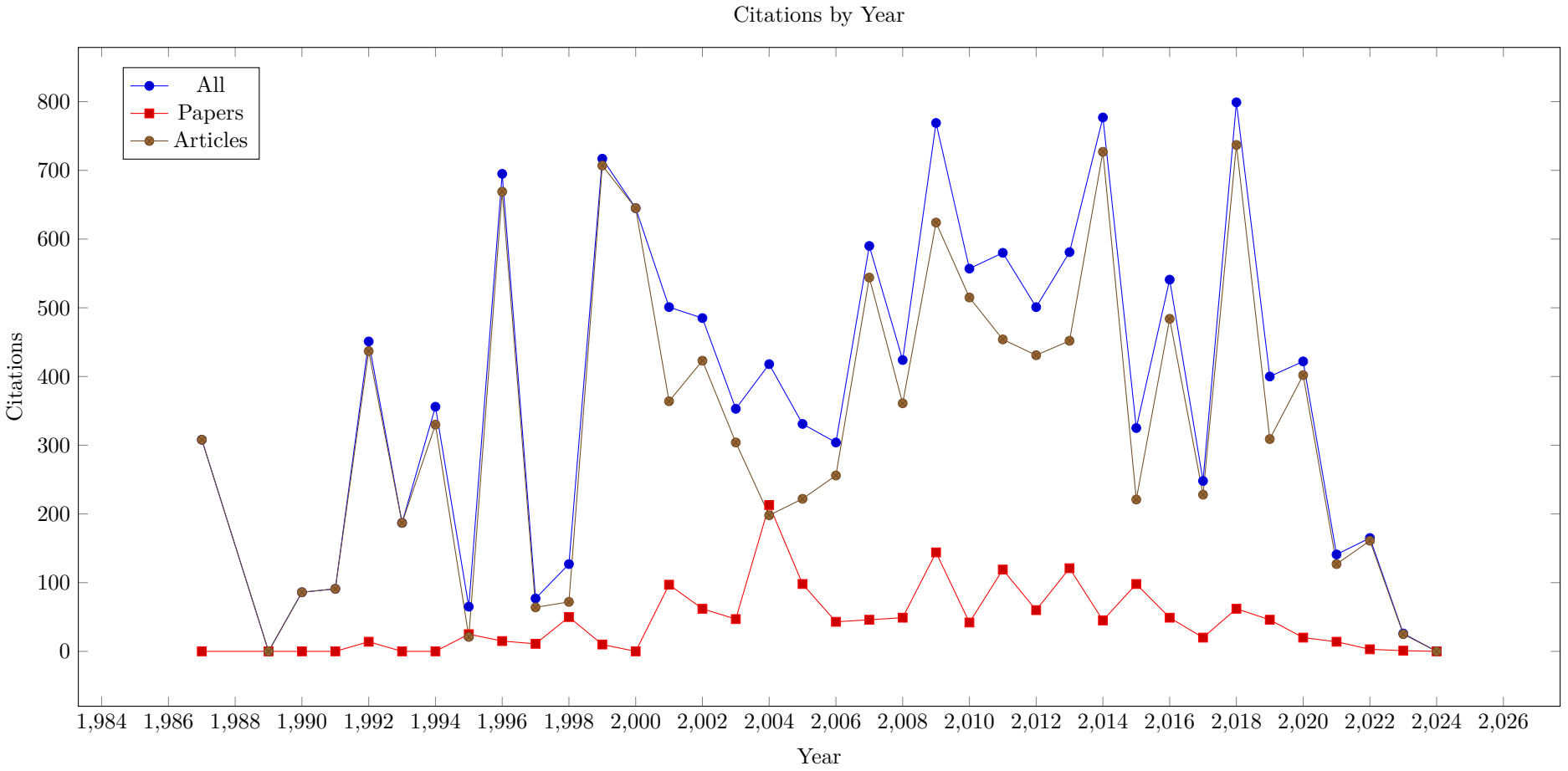
57.56
40.06
36.86
31.33
29.8
28.8
24.83
24.09
23.18
22
20.8
20.1
18.17
18
17.83
14.67
12.83
12.6
9.8
8.77
8.2
6.5
6.25
5.86
5.4
3.27
0
Management Science
Artificial Intelligence
Computers
Chemical Engineering
European Journal of Operational Research
INFORMS Journal on Computing
Computers Operations Research
Journal of Artificial Intelligence Research
Discrete Applied Mathematics
Journal of Construction Engineering and Management
Journal of Intelligent Manufacturing
Constraints An Int. J.
Annals of Operations Research
Expert Systems with Applications
Omega
Computers Industrial Engineering
The Knowledge Engineering Review
Journal of Scheduling
J. Artif. Intell. Res.
International Journal on Artificial Intelligence Tools
Theory and Practice of Logic Programming
Engineering Optimization
Mathematics
International Journal of Production Research
Proceedings of the International Conference on Automated Planning and Scheduling
IFAC Proceedings Volumes
Mathematical Problems in Engineering
Algorithms
Soft Computing
Applied Sciences
CoRR
Journal

7 Works by Year

7.1 Relevant Works




Citations by Year
All
Papers
Articles
Citations
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100
200
300
400
500
600
700
800
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1,986
1,988
1,990
1,992
1,994
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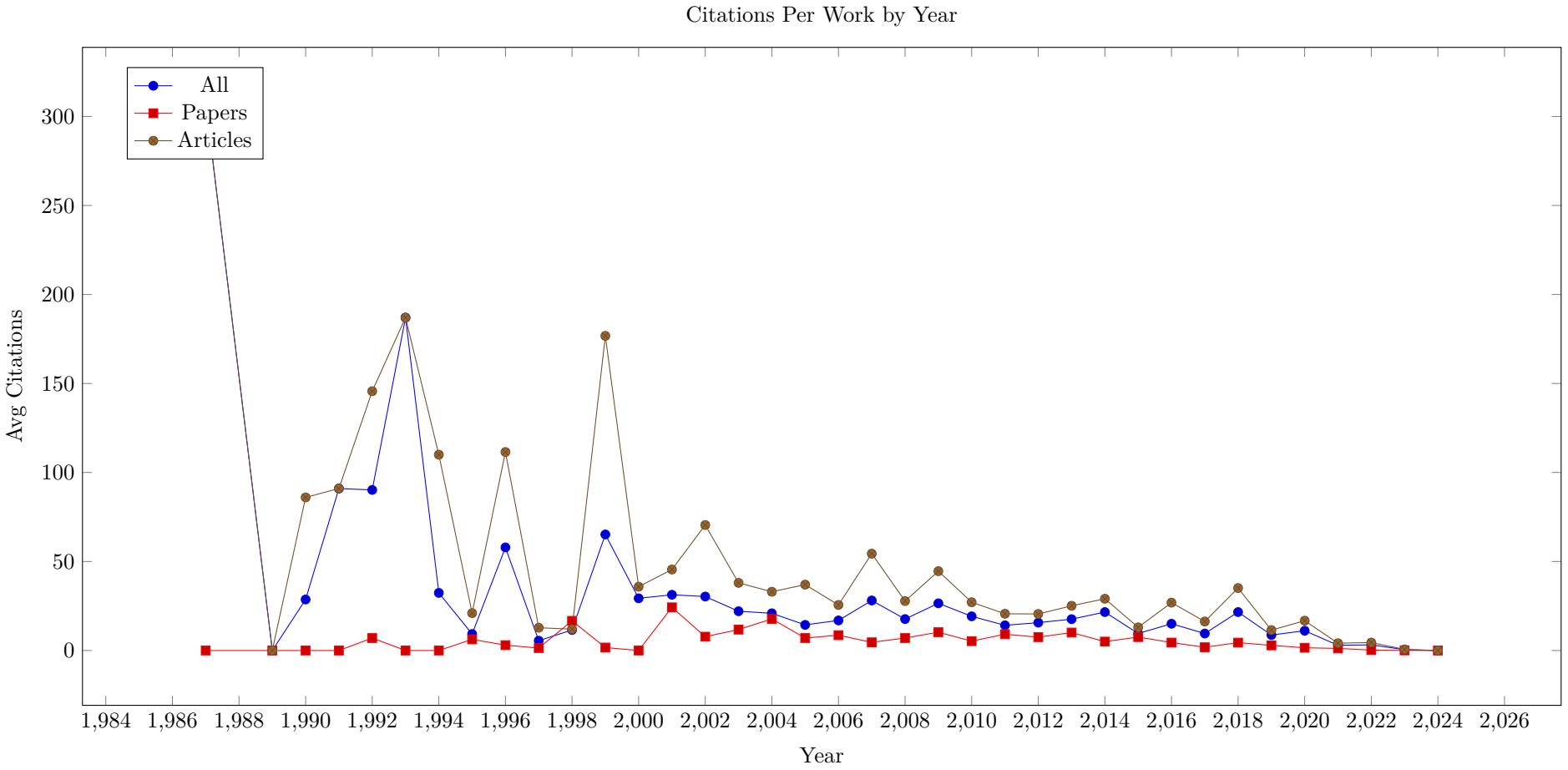
2,012
2,014
2,016
2,018
2,020
2,022
2,024
2,026
Year


Citations Per Work by Year
All
Papers
Articles
Avg Citations
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200
150
100
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2,002
2,004
2,006
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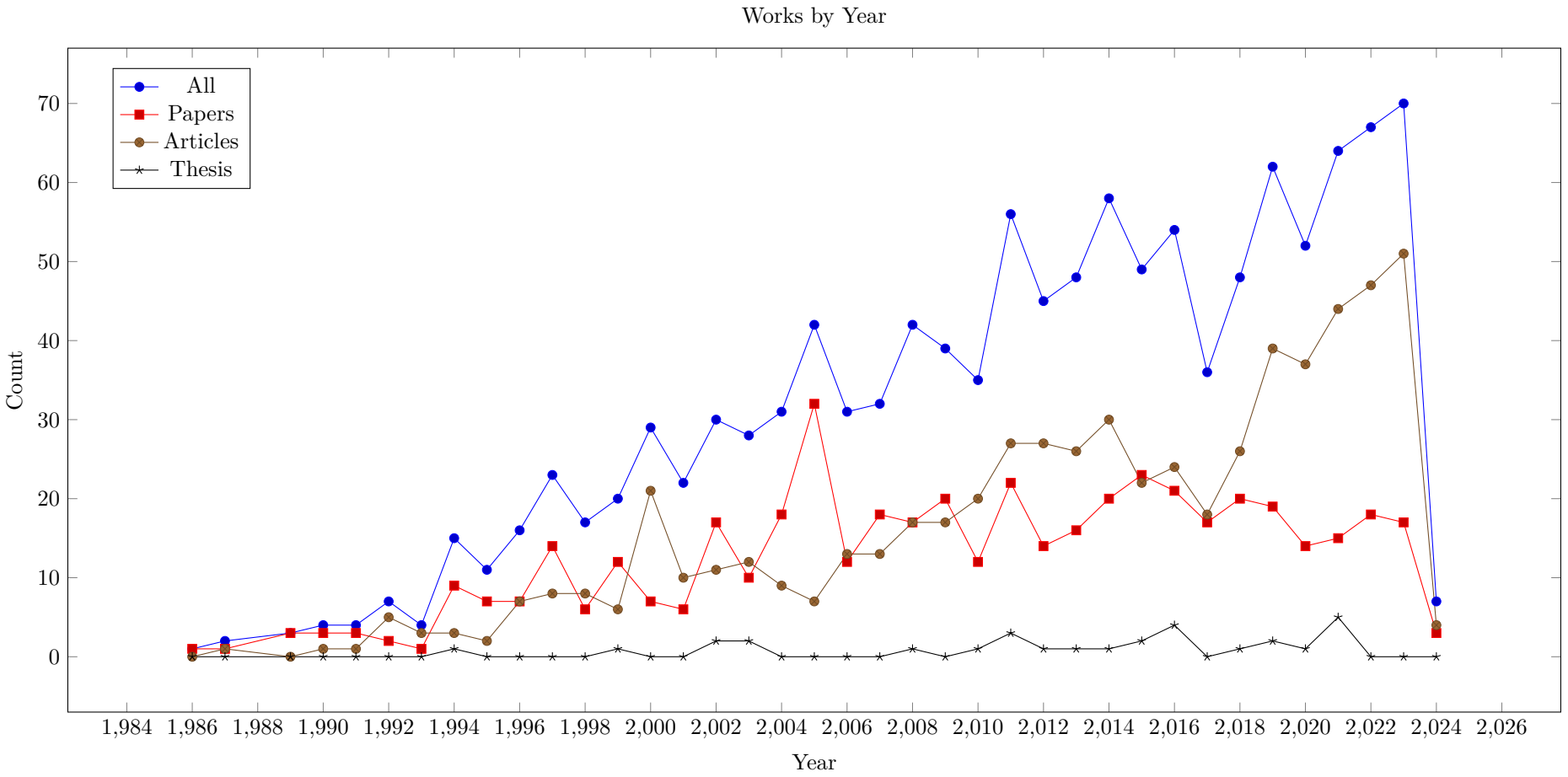
2,014
2,016
2,018
2,020
2,022
2,024
2,026
Year

7.2 All Works


Works by Year
All
Papers
Articles
Thesis
Count
0
10
20
30
40
50
60
70
1,984
1,986
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1,990
1,992
1,994
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2,000
2,002
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2,020
2,022
2,024
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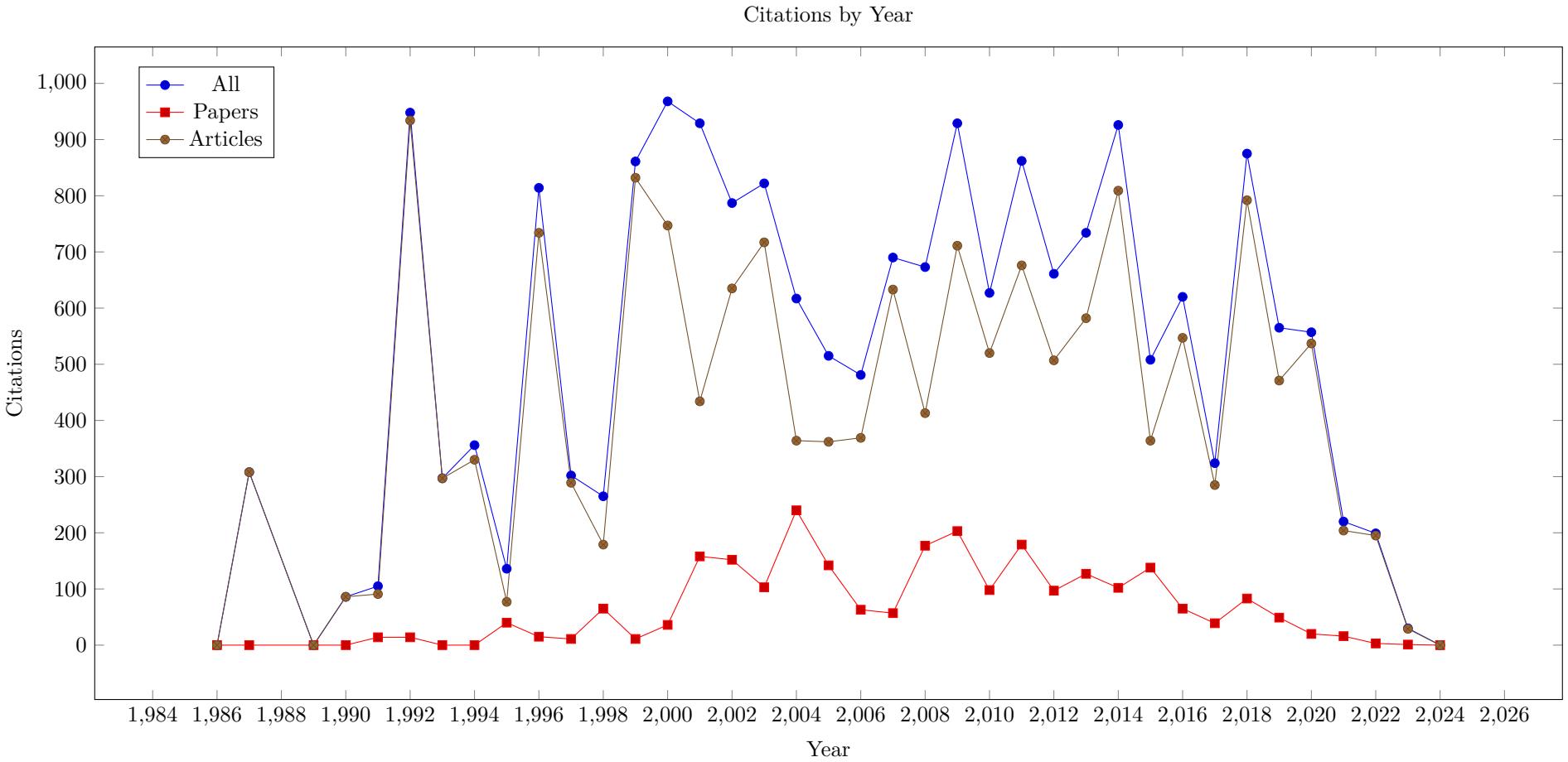
Year


Citations by Year
All
Papers
Articles
Citations
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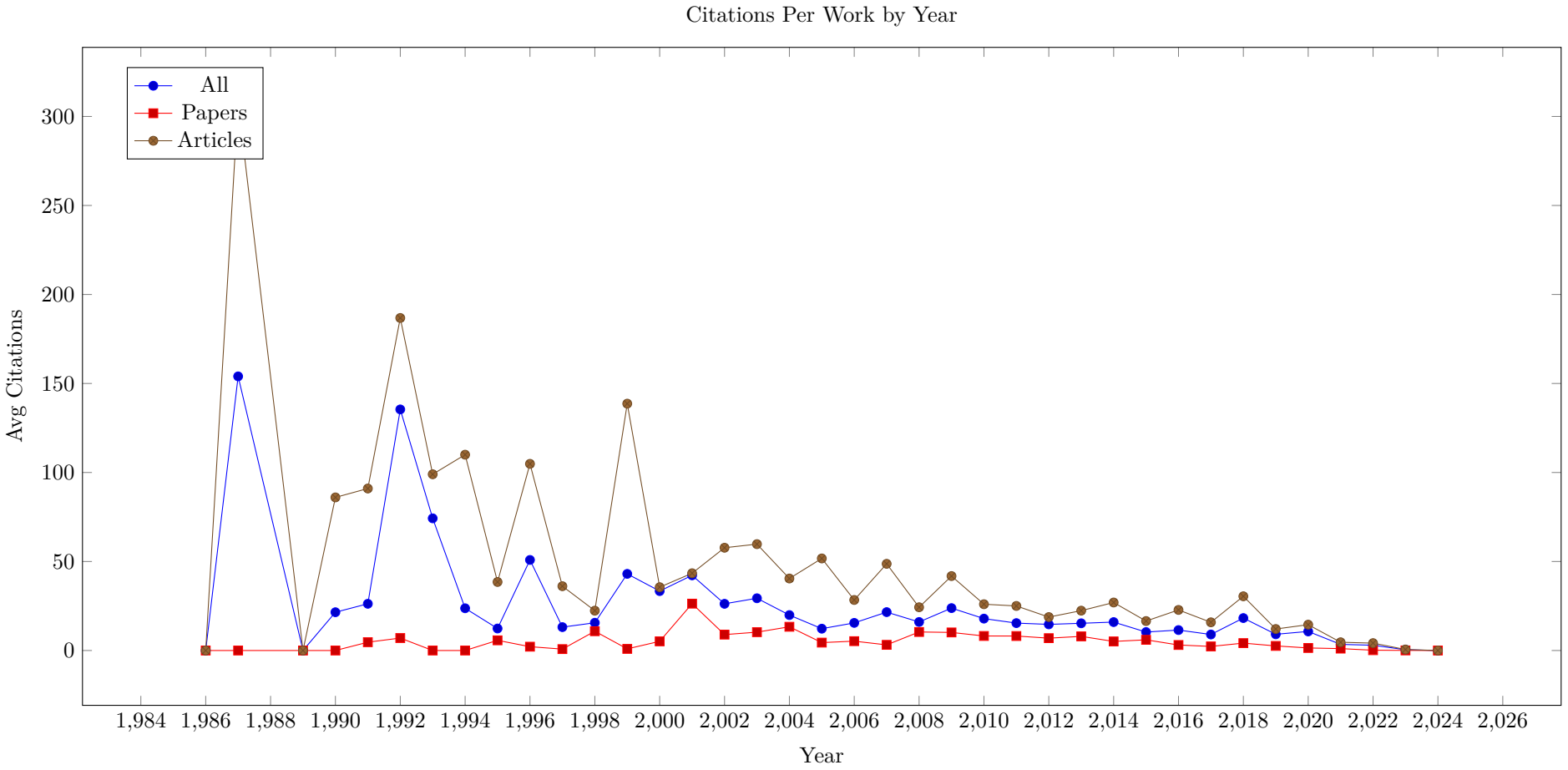
Year


Citations Per Work by Year
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Papers
Articles
Avg Citations
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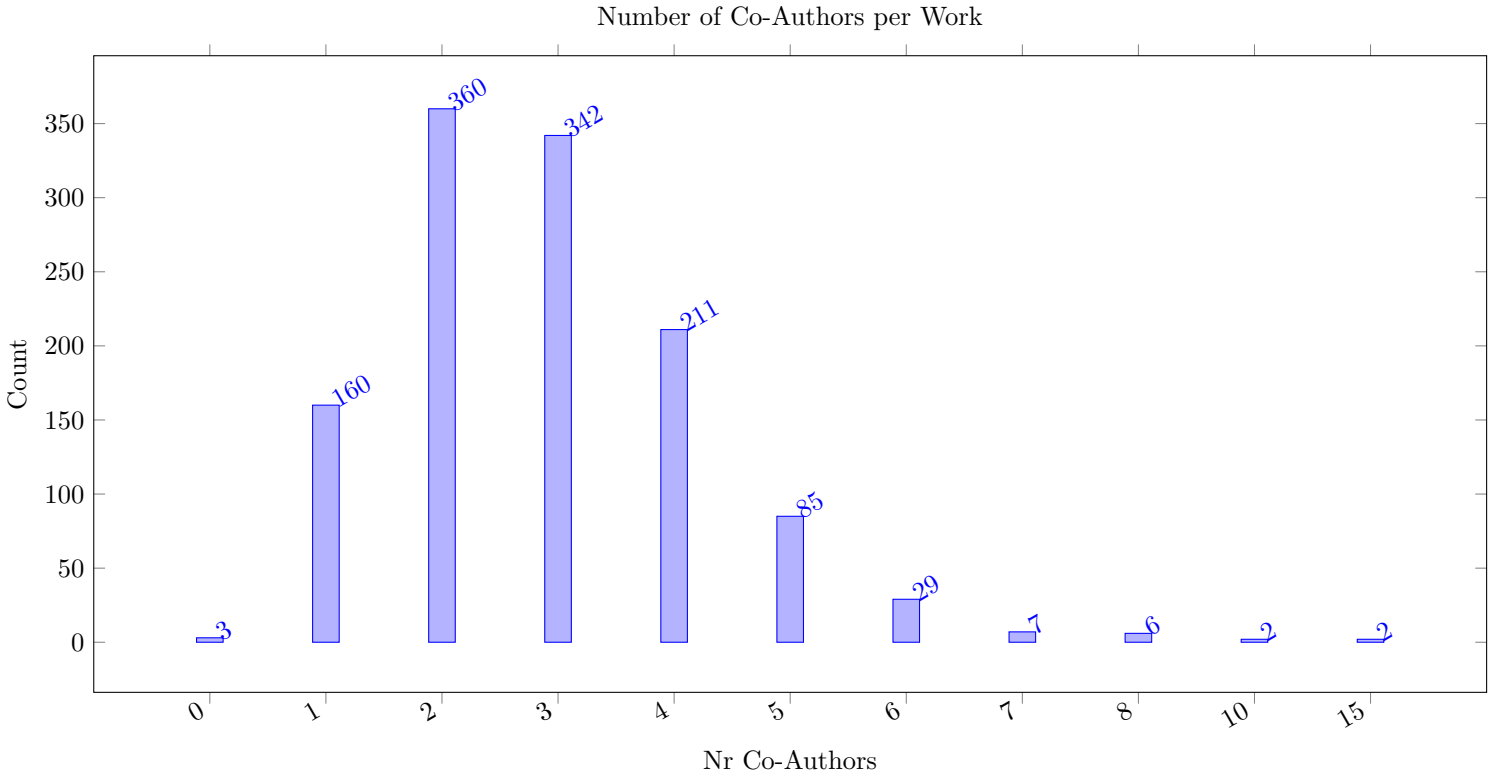
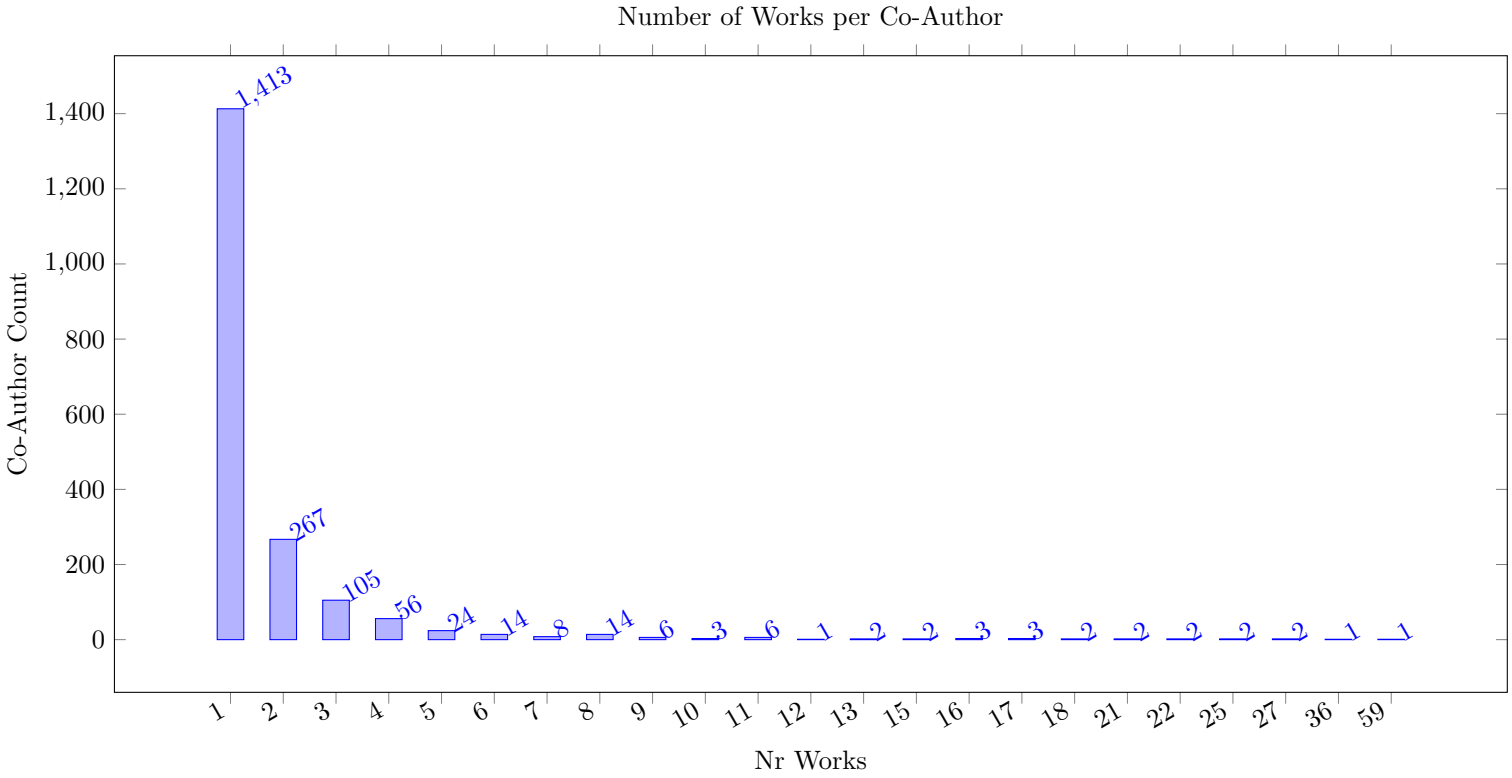
2,018
2,020
2,022
2,024
2,026
Year

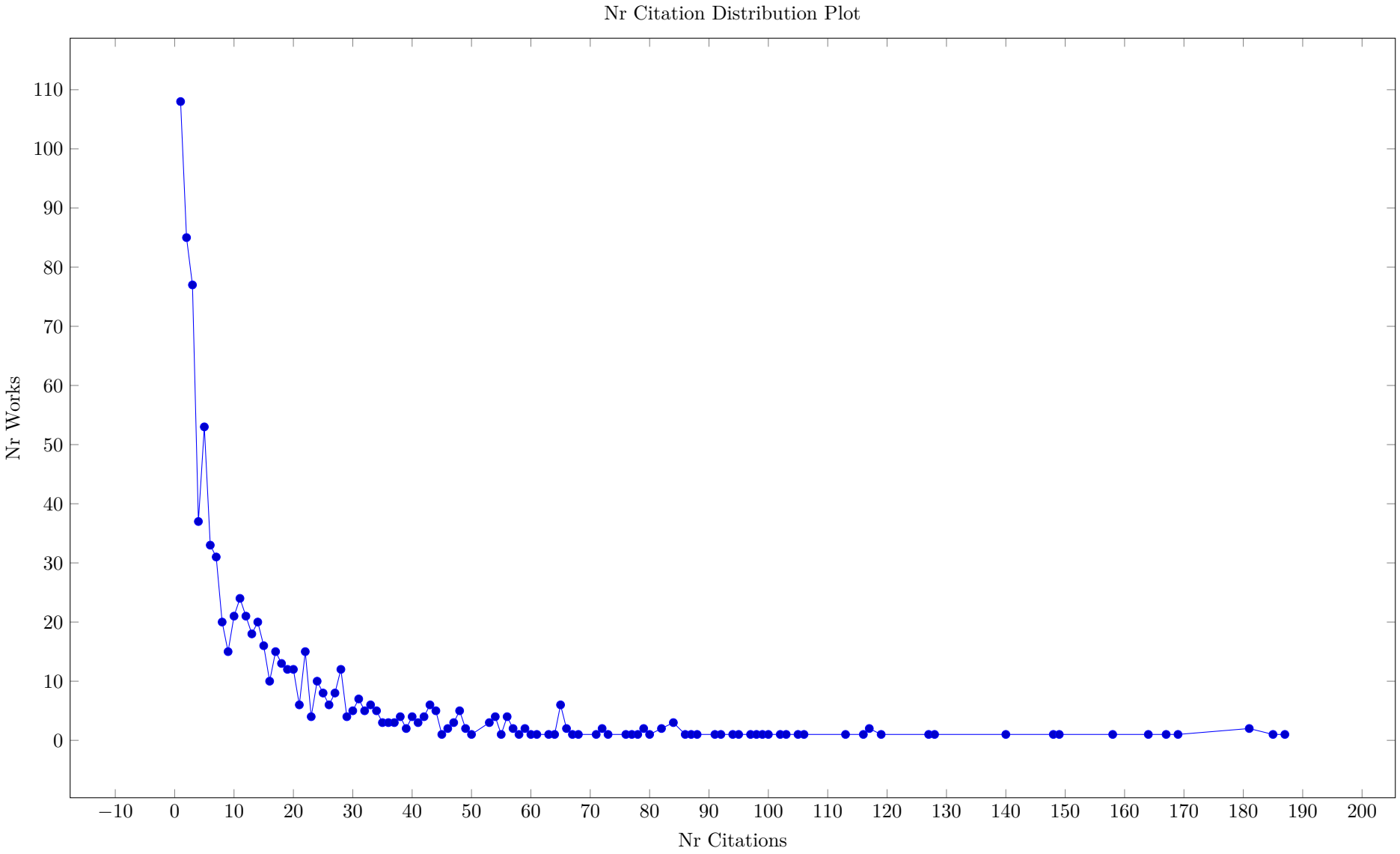
8 Number of Coauthors per Work



9 Number of Works per Author



10 Citation Distribution



11 Similarity Measures

The following distribution plot shows the similarity values between two works based on citations and references counts. If either work does not have citation and reference values, then the similarity is set to NaN. The total similarity count is the average of the similarity for citations and for references. As value we compute the ratio of non-shared references (citations) to the sum of individual references (citations). So both the citation and reference similarity range between zero and one, and the average ranges between zero and one. Low values are very rare, as they require both works to be citing the same papers, and being cited by the same papers. A larger value indicates that items are less similar according to this measure. In the plot we group values into 0.1 wide value bins, so an entry for 0.2 includes values from 0.15 to 0.25.

We observe that low values of this similarity are often found for two works by the same authors that are close in time, where we assumes that the bibliographies in both papers is based on the same literature survey. If neither paper is widely cited, the similarity value is low.

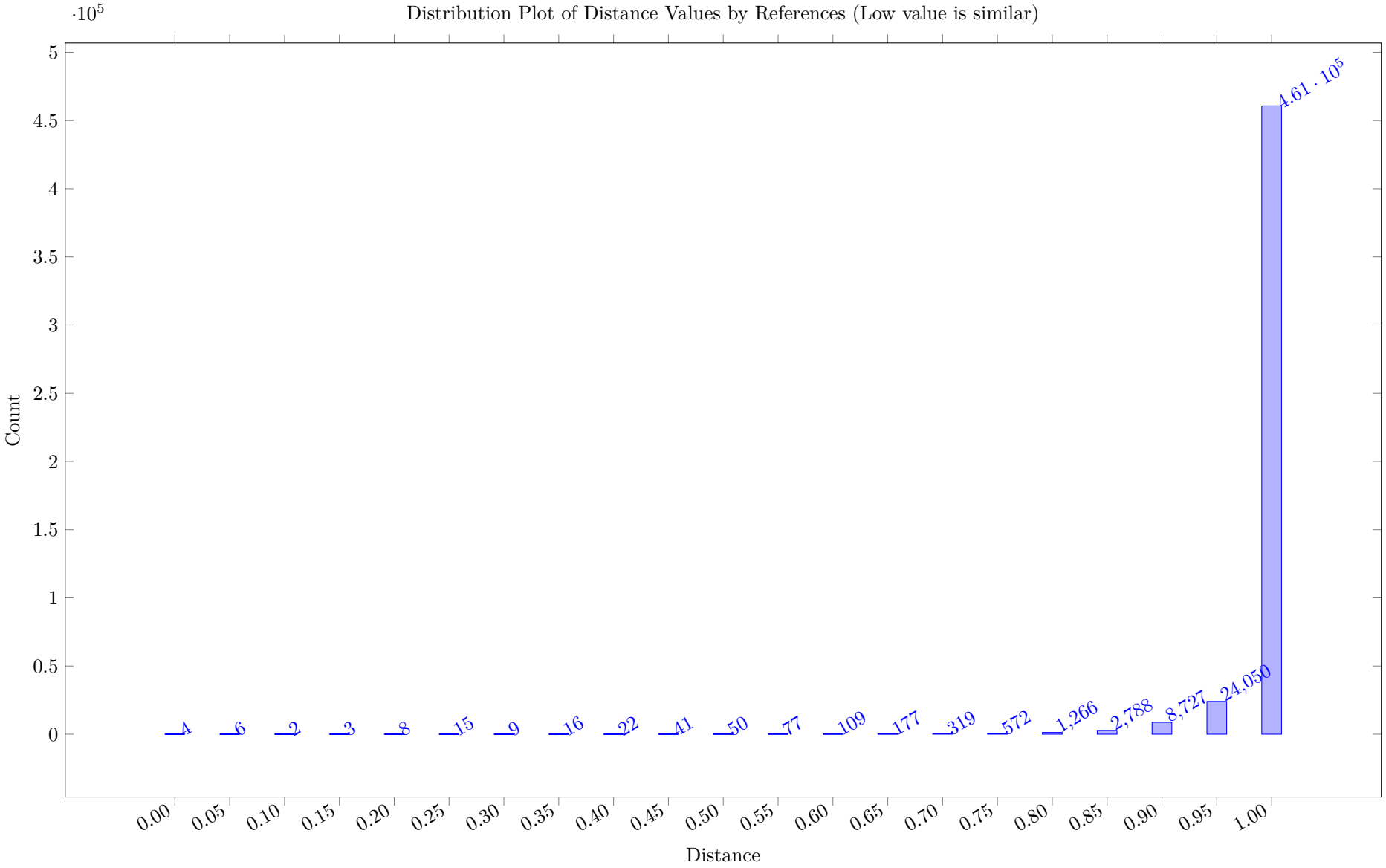
The vast majority of paper pairs has a distance close to one, as their references and citations do not overlap much.

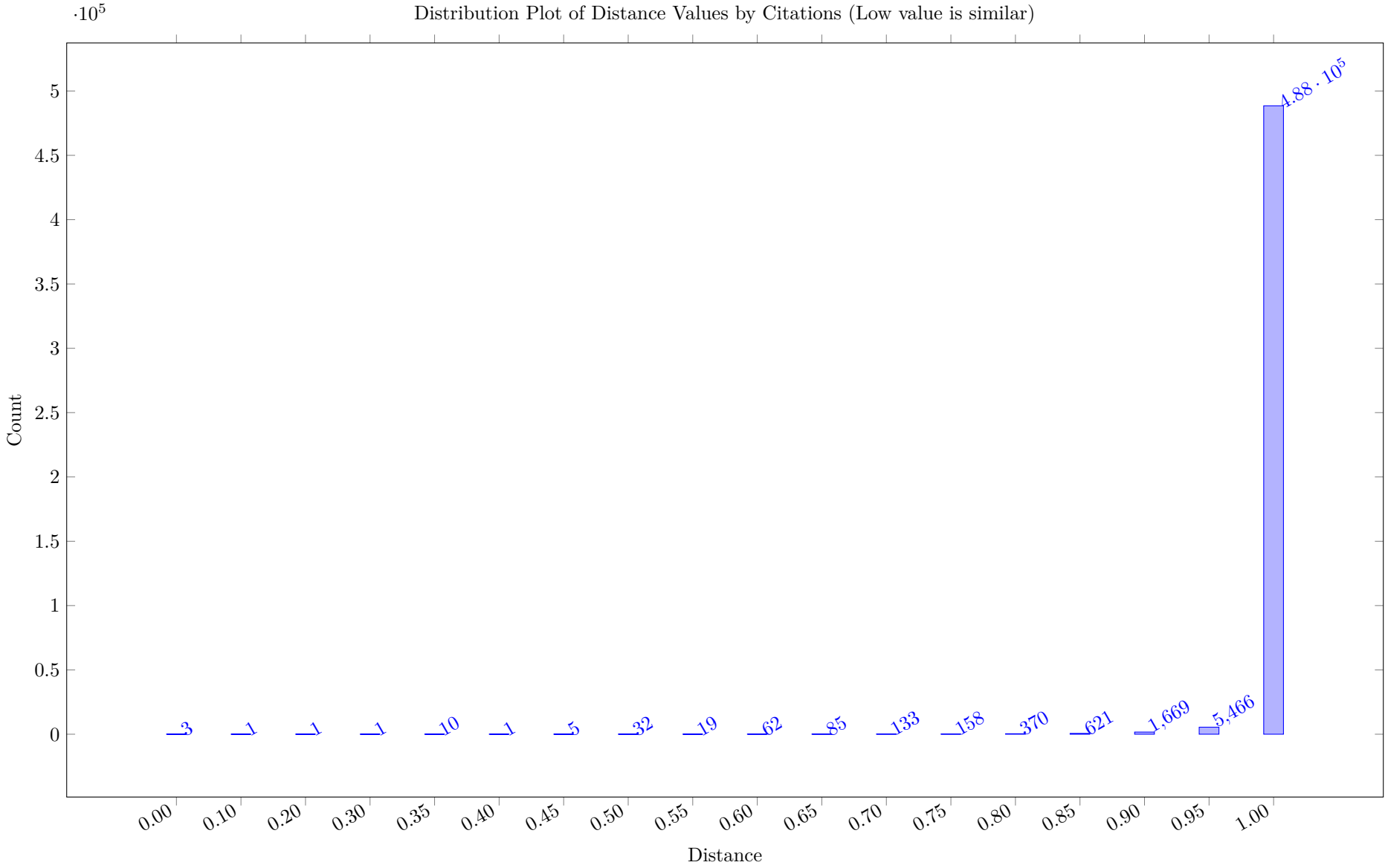
Table 9: Heat Map based on rounded DotProduct Similarity of Concepts (high = similar)

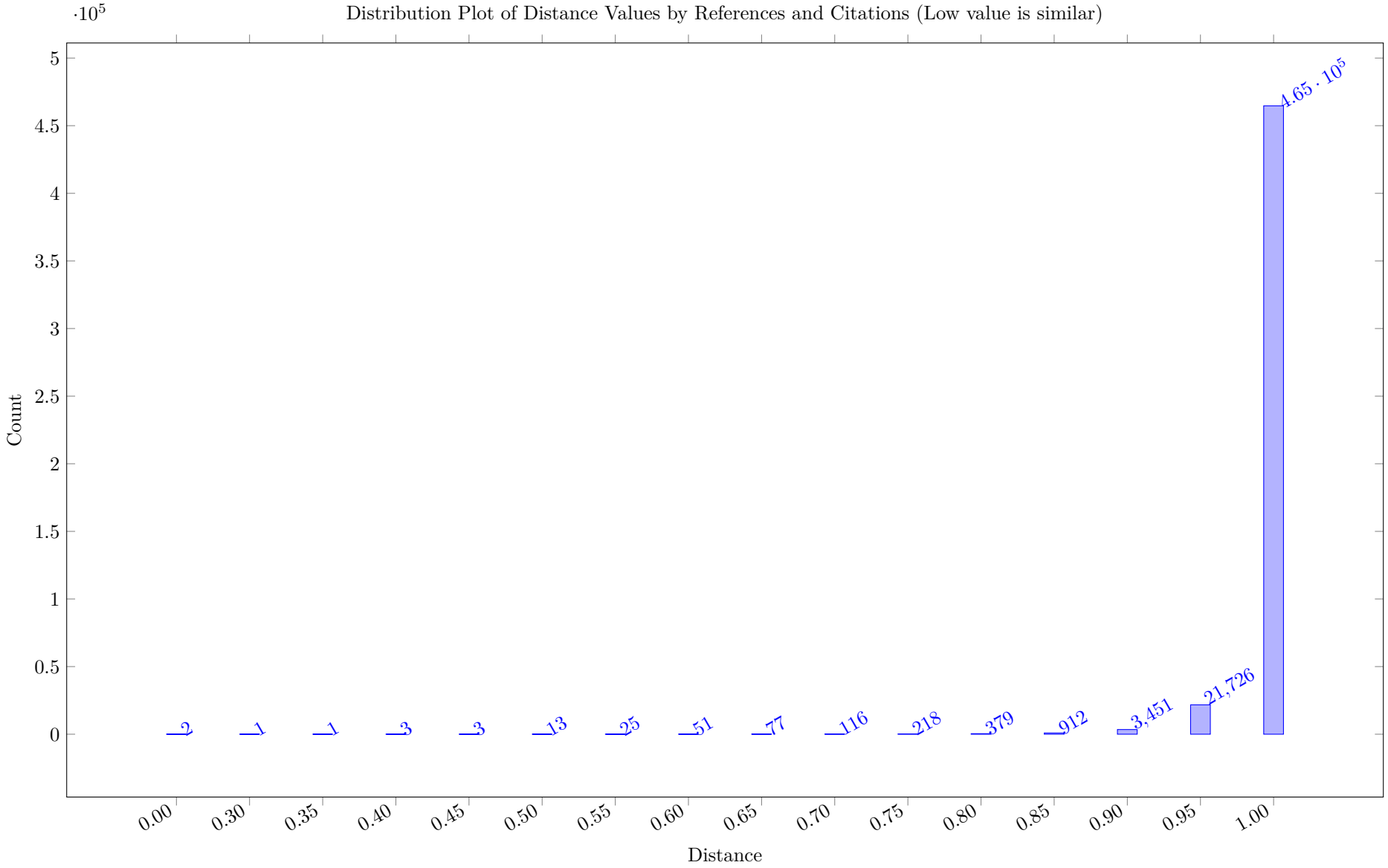
From/To	Total	ZarandiASC20	Schutt11	abs-1902-09244	YunusogluY22	VilimLS15	ZhuSZW23	Siala15a	abs-2211-14492	ZeballosNH11	abs-1911-04766	abs-2402-00459	ZhangBB22	YuraszeckMCCR23	ZeballosQH10	YuraszeckMPV22	abs-2305-19888	ZeballosH05	TerekhovDOB12	Zahout21	Zhou97	ZhouGL15	UnsalO13	Other
Total		84,572	65,448	63,920	63,644	62,017	61,902	61,866	60,139	58,751	58,566	57,771	57,345	56,516	55,092	55,030	54,267	53,873	53,511	53,257	53,234	53,225	52,676	
Baptiste02	81,960	330	266	173	201	172	169	226	161	172	148	135	159	163	149	193	144	137	201	159	170	147	144	78,041
Astrand21	79,721	307	228	174	200	162	165	191	151	143	157	142	153	144	132	173	149	130	175	149	126	159	164	76,047
Beck99	73,442	240	229	154	164	155	157	194	143	147	138	137	133	126	137	130	123	132	152	141	153	126	144	70,087
BartakSR10	69,146	232	207	134	161	143	152	177	142	140	118	120	148	118	129	145	115	126	159	134	151	132	130	65,933
Dejemeppe16	69,041	336	283	197	219	174	168	251	170	182	171	163	160	151	157	162	144	140	181	167	152	139	168	65,006
AwadMDMT22	66,002	226	168	153	176	132	134	135	133	150	129	120	117	130	130	132	129	123	149	128	106	112	130	62,960
BeckDDF98	63,075	223	160	146	158	124	136	161	126	145	111	115	116	110	127	115	98	130	149	112	121	110	119	60,163
AbreuN22	62,168	229	146	137	167	124	142	128	137	104	108	124	116	134	111	161	133	105	126	117	79	126	115	59,299
AbreuPNF23	61,646	232	155	146	176	114	135	125	124	113	105	123	108	125	107	161	126	105	138	118	86	123	120	58,781
AfsarVPG23	61,364	190	137	138	144	121	128	125	132	108	118	117	110	121	117	133	102	107	119	111	103	104	123	58,656
AstrandJZ20	60,318	181	153	131	131	127	122	150	108	110	109	102	122	114	101	119	105	102	123	99	97	115	115	57,682
ArtiguesLH13	60,156	158	149	123	152	119	95	125	108	134	109	101	97	94	113	97	101	117	128	106	108	100	108	57,614
Fahimi16	58,273	239	257	152	147	159	159	226	140	146	138	118	140	131	130	136	122	128	160	126	154	132	153	54,880
Groleaz21	58,044	368	246	198	227	195	201	234	191	166	171	179	181	159	144	206	162	131	205	190	150	166	155	53,819
ArmstrongGOS21	58,032	174	148	121	145	119	136	124	118	99	123	104	118	119	110	117	118	104	104	112	94	130	115	55,380
BartakSR08	57,595	158	164	108	122	121	123	151	112	105	95	102	120	102	95	117	89	100	121	94	123	105	102	55,066
ColT22	56,910	248	162	153	179	141	158	162	147	139	153	138	133	142	126	158	136	122	133	132	113	129	133	53,673
AbreuNP23	56,142	203	131	131	157	116	137	119	124	102	94	107	112	126	100	150	125	92	121	102	74	119	103	53,497
Caballero19	55,476	170	239	129	123	158	116	202	106	109	121	93	120	126	112	85	109	98	119	118	103	101	120	52,699
BajestaniB13	55,301	181	120	115	128	110	117	110	102	114	89	100	96	86	89	99	86	86	131	105	87	88	92	52,970
Godet21a	54,847	256	263	155	166	177	154	248	157	132	159	130	149	158	130	147	130	124	164	155	150	133	151	51,259
AbreuAPNM21	54,669	208	128	121	147	103	127	114	119	89	90	113	107	121	96	152	111	86	124	110	78	111	93	52,121
BlazewiczDP96	54,546	231	179	126	141	123	131	149	123	114	97	111	134	95	101	126	97	94	141	113	132	106	109	51,773
AlfieriGPS23	53,816	190	118	132	141	99	116	107	116	102	82	114	109	110	90	130	94	97	128	97	75	105	94	51,370
ArkhipovBL19	53,785	137	166	104	105	135	97	121	92	89	97	87	103	108	87	80	89	78	103	97	97	83	97	51,533
BidotVLB09	53,733	190	140	134	139	122	110	134	105	126	102	101	106	113	114	114	90	115	131	95	105	97	99	51,151
BeckF98	53,115	177	142	115	122	113	122	142	109	100	102	108	97	100	97	96	91	99	116	109	105	86	103	50,664
BeckF00	52,407	146	167	108	105	117	110	156	99	106	93	84	107	91	92	92	76	94	112	79	117	76	100	50,080
BosiM2001	52,124	156	162	110	131	137	111	158	115	114	100	105	126	112	105	106	98	95	123	101	127	108	96	49,528
BonninMNE24	51,838	172	159	113	122	119	112	130	104	98	110	99	112	106	99	131	101	99	128	109	115	95	119	49,286
BaptisteP00	50,735	127	164	99	95	121	91	139	82	100	93	73	98	94	85	77	74	77	103	95	109	77	103	48,559
BeckR03	50,554	156	132	131	127	119	115	134	111	129	93	100	103	90	107	97	72	106	132	87	109	85	93	48,126
AntuoriHHEN20	50,468	134	121	104	100	95	82	113	109	94	86	99	90	78	82	83	68	87	97	77	91	74	82	48,422
BaptisteP97	50,176	132	164	105	92	122	88	133	79	99	95	75	95	95	79	77	71	75	103	93	106	75	102	48,021
ChenGPSH10	50,173	163	164	101	109	127	121	149	110	120	96	96	113	97	102	106	82	102	115	92	116	94	110	47,688
BeckPS03	50,153	151	138	122	120	116	106	131	104	115	91	92	99	105	101	96	86	107	112	85	96	93	98	47,789
Astrand0F21	50,135	123	117	96	97	106	98	120	91	81	97	94	103	98	88	93	86	90	93	83	83	81	95	48,022
Bit-Monnot23	50,089	135	154	106	99	129	120	177	105	94	103	98	121	105	86	105	86	91	101	95	103	89	98	47,689
BaptistePN99	49,679	144	157	106	101	120	88	123	86	87	94	80	92	102	79	91	76	72	112	97	106	75	90	47,501
BeckW07	49,175	162	141	118	102	123	100	128	94	98	84	85	100	108	88	98	78	92	112	99	90	95	85	46,895
BonfiettiLBM14	49,033	126	156	107	102	131	97	136	93	99	99	92	103	102	91	79	85	88	100	90	87	80	96	46,794
BoudreaultSLQ22	48,654	131	178	119	108	135	92	142	102	91	138	102	103	122	96	83	94	86	95	96	84	86	112	46,259
Other		76,400	58,290	58,475	57,796	56,542	56,664	55,466	55,159	53,846	53,860	53,193	52,416	51,685	50,581	49,982	49,916	49,504	48,072	48,583	48,603	48,758	47,898	

Table 10: Heat Map based on 100*Cosine Similarity of Concepts (high = similar)

From/To	Total	ZeballosH05	ZeballosM09	abs-2312-13682	VilimLS15	abs-1901-07914	ZhangYW21	ZeballosQH10	Wolf05	abs-1902-09244	ZouZ20	abs-2305-19888	ZhangBB22	ZeballosNH11	abs-2306-05747	VilimBC05	WatsonB08	abs-2211-14492	VilimBC04	WikarekS19	ZibranR11a	abs-2402-00459	Zhou97	Other
Total		41,166	41,084	40,663	40,350	39,970	39,826	39,562	39,562	39,434	39,304	39,101	38,987	38,979	38,919	38,791	38,748	38,697	38,691	38,394	38,358	38,098	38,014	
Bartak02a	40,662	66	62	60	70	65	61	62	66	57	59	53	61	59	57	70	63	59	71	67	50	59	67	39,298
BartakSR08	40,585	66	60	57	68	60	63	59	70	58	56	56	71	60	59	76	67	63	75	70	52	59	77	39,183
AfsarVPG23	39,830	65	62	54	63	53	74	68	62	69	59	59	61	58	67	58	69	69	60	55	50	62	59	38,474
AstrandJZ20	39,678	63	61	61	67	56	67	59	62	66	53	62	68	59	64	68	67	57	67	63	52	55	56	38,325
ArkhipovBL19	39,579	54	54	51	80	53	65	57	71	59	49	59	64	54	55	63	60	54	62	72	41	52	63	38,287
BeckPS03	39,459	78	73	57	73	64	68	70	74	73	55	60	66	74	64	71	73	65	72	72	49	59	66	37,983
ArtiguesLH13	38,949	71	68	58	62	52	49	65	63	61	57	58	53	71	49	60	52	56	60	53	59	53	62	37,657
AstrandJZ18	38,936	66	67	69	62	69	52	64	60	52	56	55	53	53	51	59	56	51	57	54	64	48	49	37,669
Astrand0F21	38,554	64	57	64	65	64	68	59	59	56	49	59	66	51	63	63	64	55	60	63	46	58	56	37,245
AngelsmarkJ00	38,524	53	63	48	58	60	48	49	60	39	50	44	51	56	47	53	56	52	52	57	54	48	59	37,367
Beck07	38,364	64	64	56	73	56	71	58	68	64	55	52	73	61	68	68	85	67	74	65	60	59	65	36,938
AalianPG23	38,341	59	62	73	59	59	54	59	56	58	56	61	52	48	56	56	55	44	56	49	61	45	35	37,128
AbidinK20	38,124	55	55	56	52	50	58	60	45	56	70	51	51	56	46	51	51	49	45	49	64	63	44	36,947
AwadMDMT22	37,740	66	61	53	61	47	65	66	68	68	58	66	57	71	58	60	58	61	57	56	51	56	54	36,422
BeckDDF98	37,609	73	72	57	59	63	63	67	61	67	55	52	58	71	57	65	62	60	65	65	56	56	64	36,241
BeckFW11	37,506	62	61	63	74	60	72	63	70	62	47	62	75	55	77	65	93	72	70	69	53	66	63	36,052
Bartak02	37,371	59	67	53	60	59	47	53	59	45	55	44	51	60	44	65	51	49	64	66	56	46	60	36,158
Alaka21	37,363	60	53	56	52	57	63	60	51	53	68	55	53	46	48	54	48	49	47	50	52	59	45	36,184
BartakSR10	37,105	64	58	47	62	60	60	62	70	56	51	55	68	62	54	69	59	61	68	68	44	53	72	35,782
Adelgren2023	37,014	53	52	56	54	54	57	51	60	48	46	65	57	52	53	51	56	53	50	55	41	47	52	35,851
AkramNHRSA23	36,913	56	54	57	55	63	62	55	57	47	57	59	50	43	58	46	59	63	45	43	57	64	51	35,712
Astrand21	36,871	57	54	53	61	49	61	55	55	63	51	62	61	55	57	61	57	56	59	55	47	54	52	35,636
AlakaP23	36,679	55	52	51	51	61	63	58	45	51	67	51	50	49	43	51	45	45	44	53	52	53	41	35,548
BockmayrP06	36,674	65	70	73	65	70	49	64	60	55	56	60	54	58	55	58	59	54	55	58	61	58	68	35,349
AlesioBNG15	36,542	53	55	51	54	56	60	56	58	48	66	56	51	54	52	48	55	53	48	49	64	53	45	35,357
Beck99	36,508	62	60	51	62	57	64	60	65	59	55	55	56	60	56	69	63	57	68	60	50	56	68	35,195
Beck06	36,199	65	61	57	64	59	63	56	65	61	40	49	67	60	66	61	84	67	66	68	47	59	59	34,855
BeckF00a	36,150	61	66	49	64	56	54	56	70	49	52	46	56	60	51	80	63	52	80	64	52	45	64	34,860
AbreuN22	36,138	58	48	56	59	48	66	58	54	62	50	70	58	50	63	51	62	64	51	55	41	60	41	34,913
BeniniLMR11	36,108	66	65	62	65	61	56	64	62	57	65	58	56	63	53	60	56	52	59	56	58	53	49	34,812
BenderWS21	35,932	69	68	70	65	68	66	65	65	63	61	70	53	57	59	58	63	52	58	60	63	48	42	34,589
BeckF98	35,882	62	55	46	61	60	68	58	66	59	51	55	55	55	58	66	60	59	69	63	42	59	63	34,592
AbreuPNF23	35,799	58	49	53	54	48	65	56	55	66	48	66	54	54	61	51	64	58	54	52	45	59	45	34,584
BaptisteB18	35,776	52	55	57	65	57	52	51	69	47	44	56	50	53	48	60	51	45	61	62	42	44	56	34,599
AlakaPY19	35,740	58	51	50	49	54	59	57	47	51	69	52	49	46	43	51	41	46	42	46	50	55	41	34,633
AntuoriHHEN20	35,702	57	51	49	54	48	48	51	50	56	49	43	53	54	62	52	52	61	51	47	44	57	57	34,556
BeckR03	35,644	70	64	48	67	46	65	67	61	71	59	45	61	74	56	63	66	62	65	59	58	57	68	34,292
CarchraeB09	35,608	68	69	71	80	67	70	64	73	65	53	61	75	65	76	67	85	71	70	67	54	68	64	34,105
BaptisteP97	35,547	50	54	46	69	43	58	50	69	57	48	45	57	57	49	68	53	45	72	63	47	43	66	34,338
BeckF00	35,501	60	61	46	63	52	59	55	67	56	50	46	61	59	52	75	63	53	76	64	46	46	70	34,221
AlfieriGPS23	35,428	60	46	51	53	48	65	53	54	67	47	56	61	55	61	55	65	62	57	56	40	62	44	34,210
Balduccini11	35,297	59	44	52	52	46	51	44	45	52	51	43	46	52	53	55	52	52	55	51	48	55	48	34,191
Other		38,584	38,600	38,315	37,744	37,592	37,277	37,098	36,995	37,005	37,011	36,769	36,544	36,569	36,550	36,240	36,185	36,322	36,154	35,925	36,195	35,787	35,644	

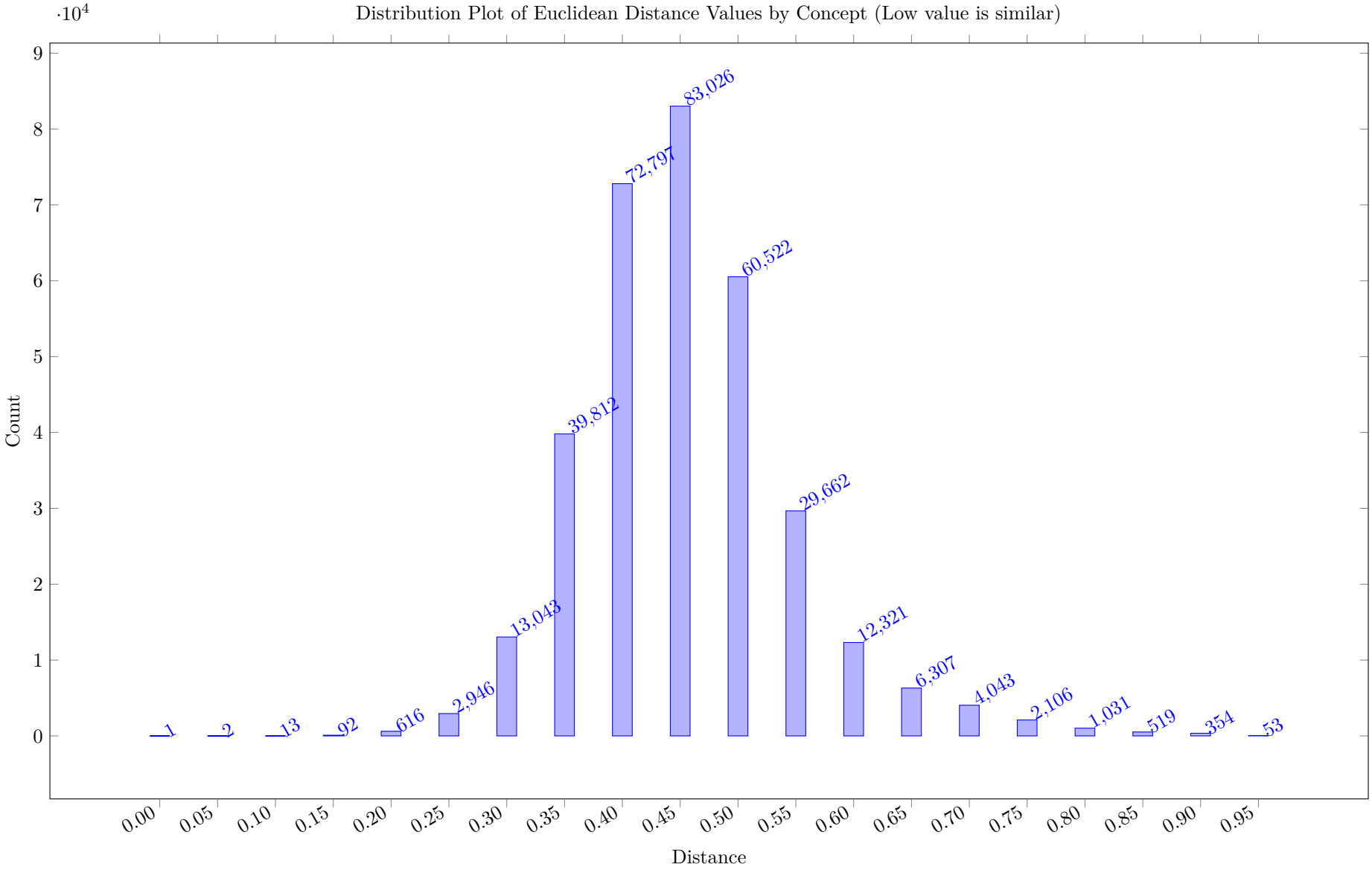

Distribution Plot of Distance Values by References (Low value is similar)
$\cdot 10^5$
Count
Distance
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
0.55
0.60
0.65
0.70
0.75
0.80
0.85
0.90
0.95
1.00
4
6
2
3
8
15
9
16
22
41
50
77
109
177
319
572
1,266
2,788
8,727
24,050
$4.61 \cdot 10^5$

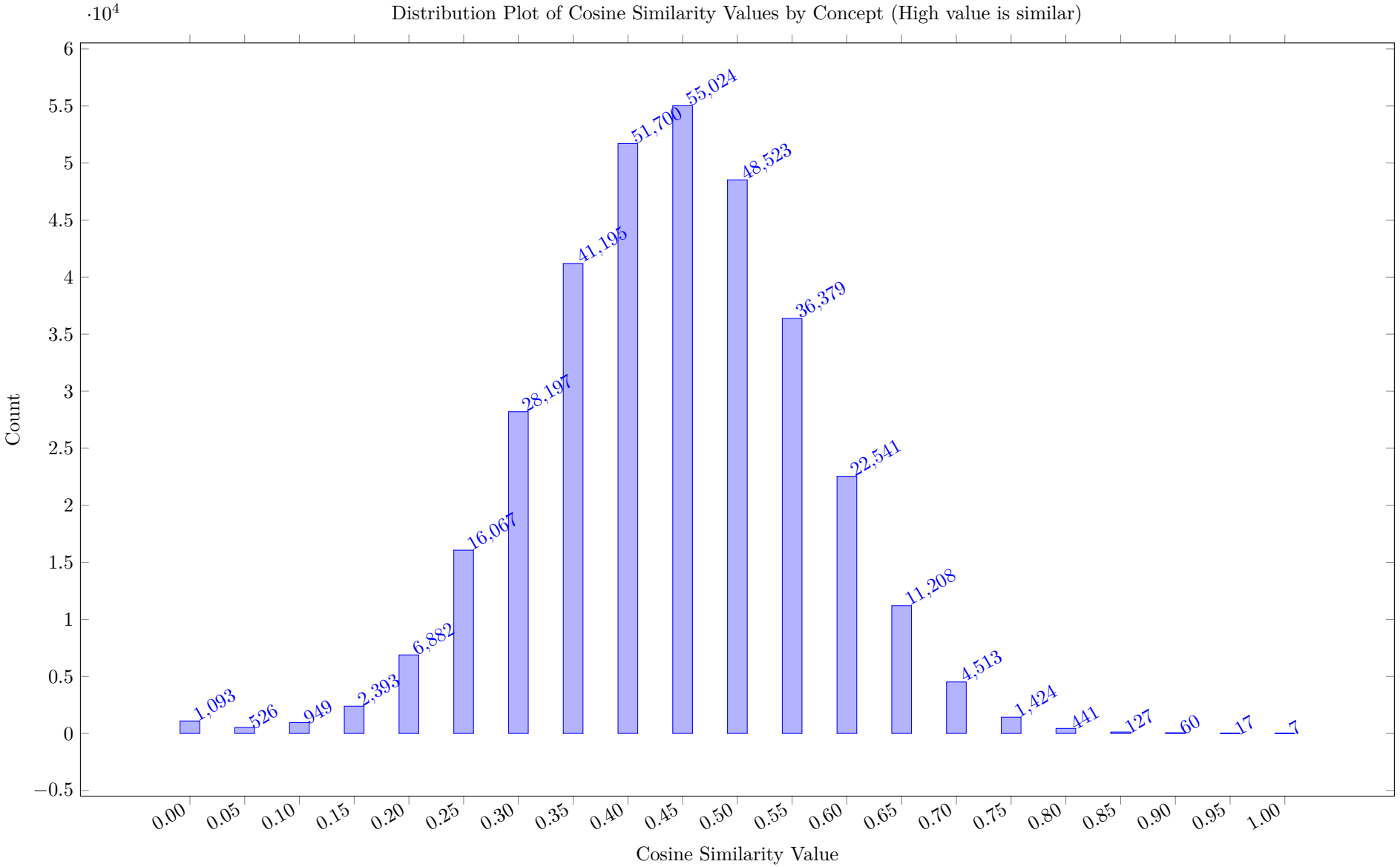

Distribution Plot of Distance Values by Citations (Low value is similar)
$\cdot 10^5$
Count
Distance
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
0.00
0.10
0.20
0.30
0.35
0.40
0.45
0.50
0.55
0.60
0.65
0.70
0.75
0.80
0.85
0.90
0.95
1.00
3
1
1
1
10
1
5
32
19
62
85
133
158
370
621
1,669
5,466
$4.88 \cdot 10^5$

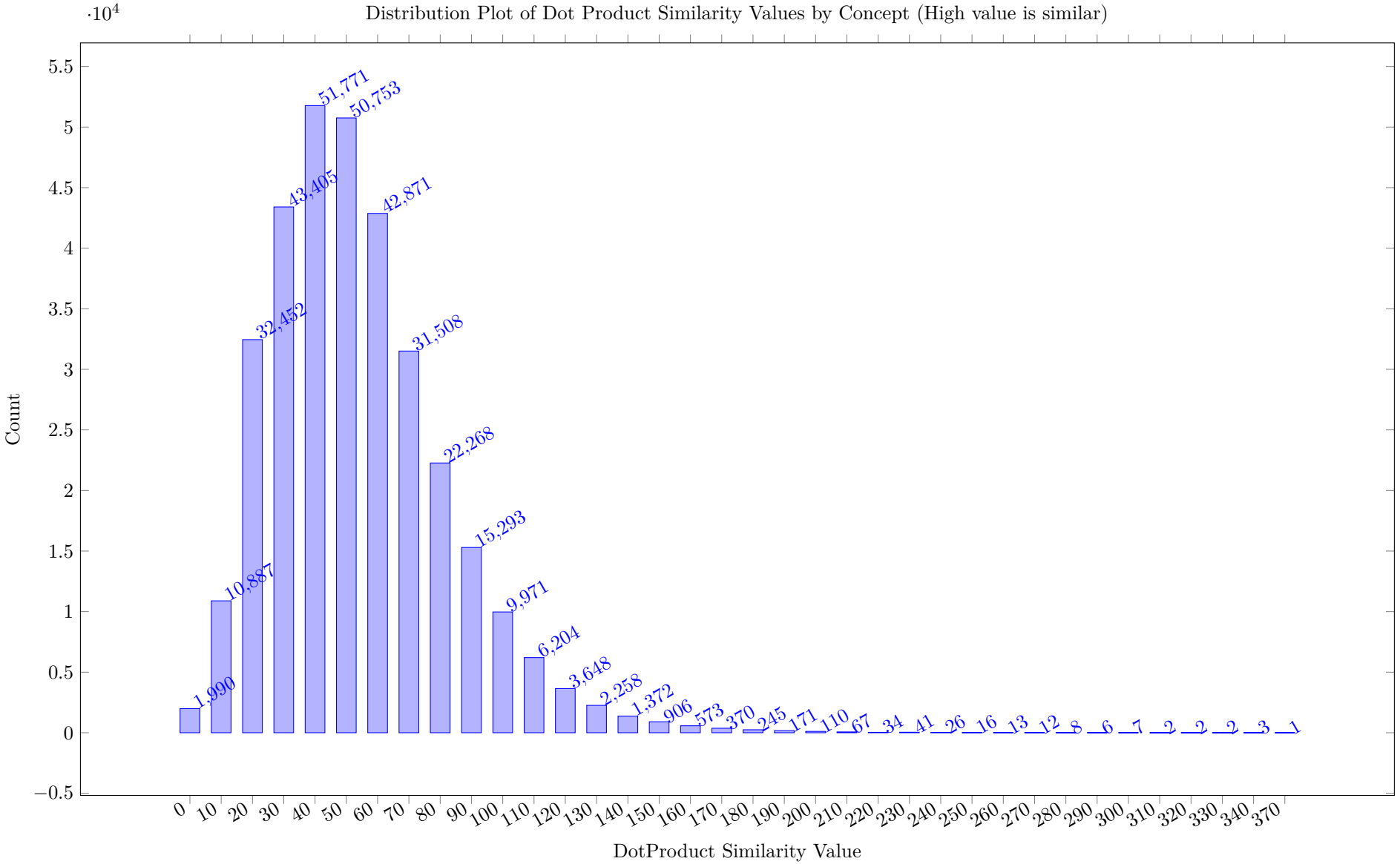


The similarity by concept uses the Euclidean distance between the feature vectors for two works. We translate the MatchLevel for each Concept into a linear

scale, and then calculate the distances as the square root of the sum of squared differences for each feature. The distribution plot below rounds the distances to integer values. Similarity values of this type are only calculated when both works have a local copy, from which we extract the features. If either work does not have a local copy, the similarity is set to be NaN.


Distribution Plot of Euclidean Distance Values by Concept (Low value is similar)
$\cdot 10^4$
Count
Distance
0
1
2
3
4
5
6
7
8
9
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
0.55
0.60
0.65
0.70
0.75
0.80
0.85
0.90
0.95
1
2
13
92
616
2,946
13,043
39,812
72,797
83,026
60,522
29,662
12,321
6,307
4,043
2,106
1,031
519
354
53

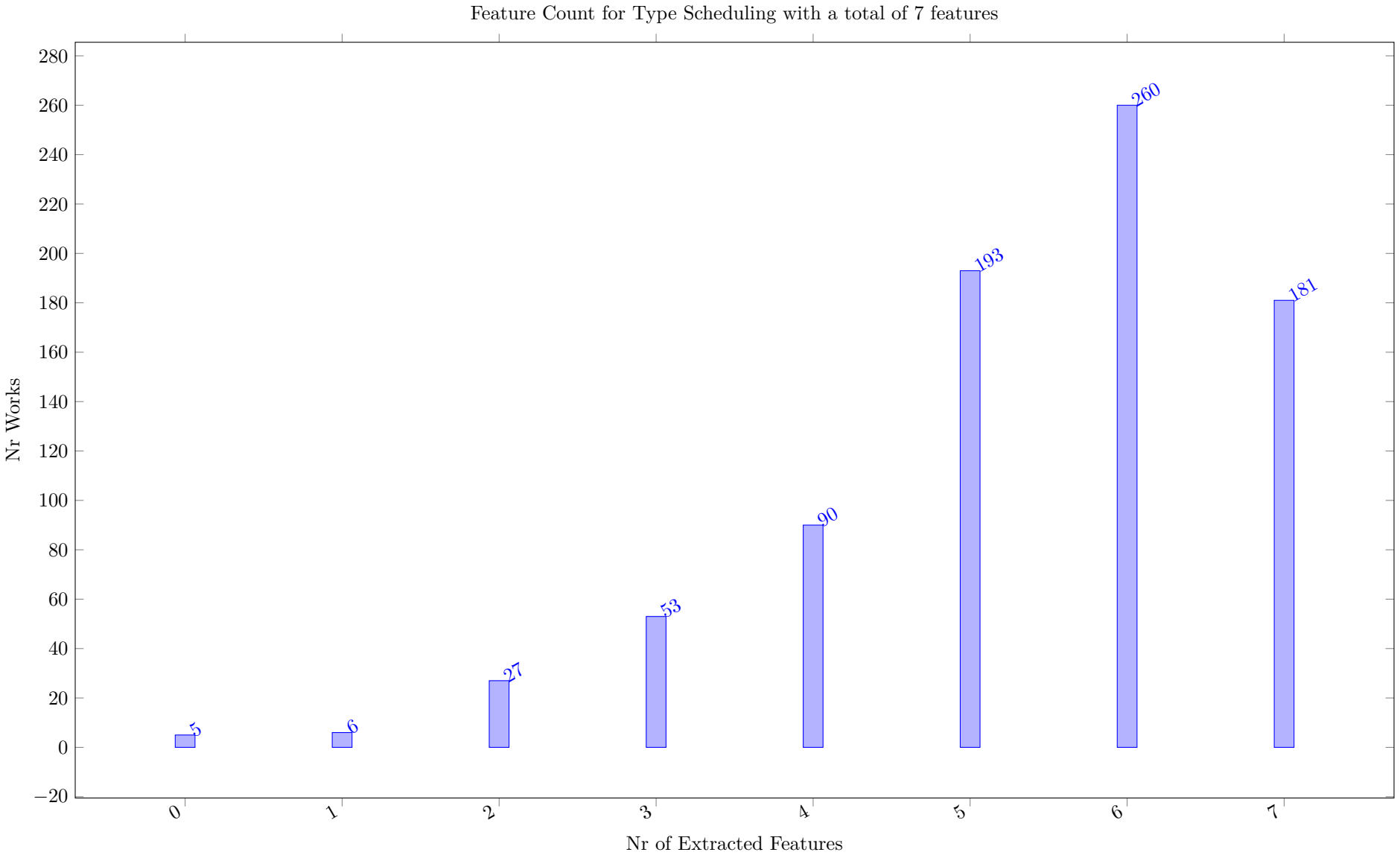

Distribution Plot of Cosine Similarity Values by Concept (High value is similar)
$\cdot 10^4$
Count
Cosine Similarity Value
6
5.5
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
−0.5
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
0.55
0.60
0.65
0.70
0.75
0.80
0.85
0.90
0.95
1.00
1,093
526
949
2,393
6,882
16,067
28,197
41,195
51,700
55,024
48,523
36,379
22,541
11,208
4,513
1,424
441
127
60
17
7

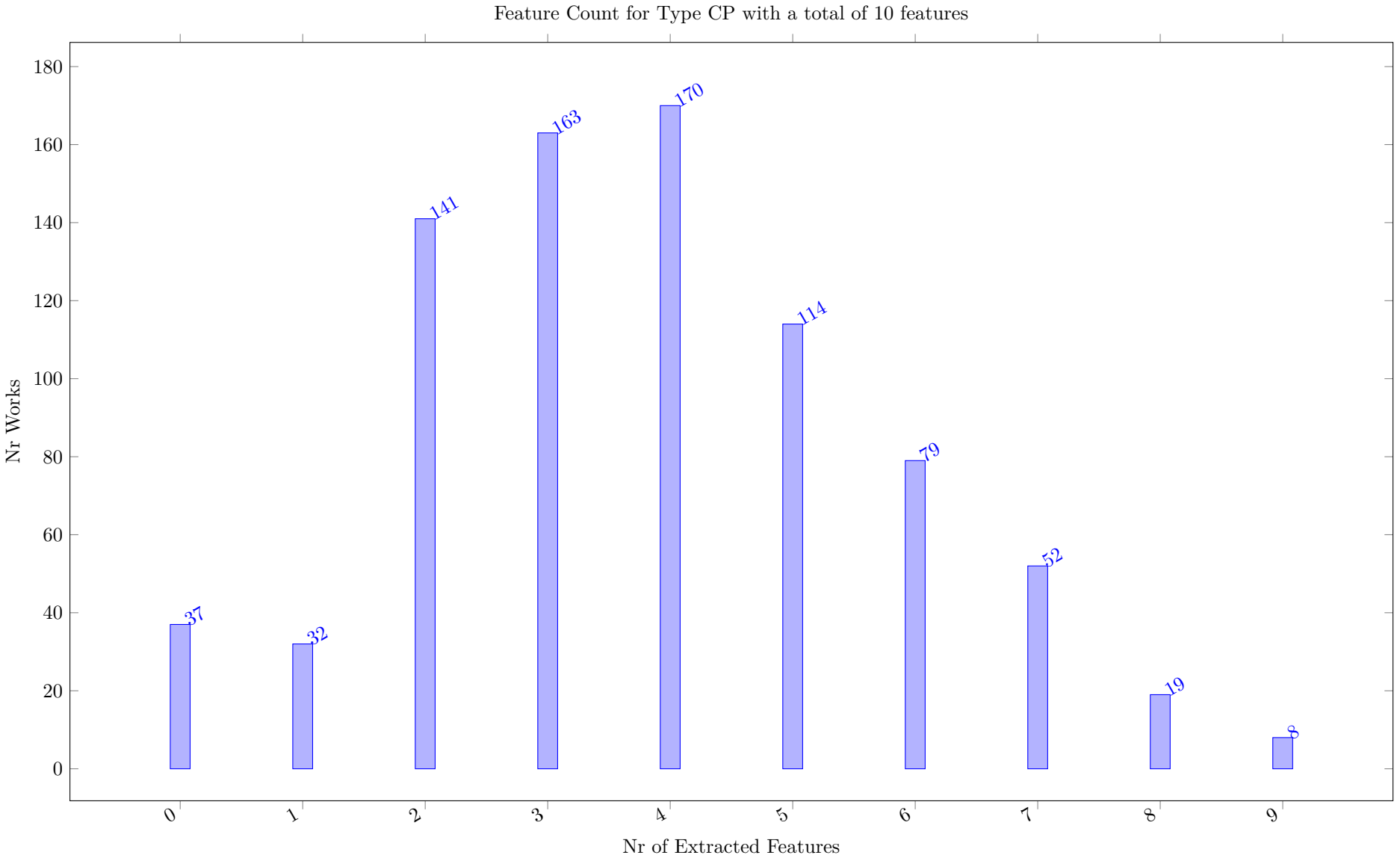

Distribution Plot of Dot Product Similarity Values by Concept (High value is similar)
$\cdot 10^4$
Count
DotProduct Similarity Value
5.5
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
−0.5
1,990
10,887
32,452
43,405
51,771
50,753
42,871
31,508
22,268
15,293
9,971
6,204
3,648
2,258
1,372
906
573
370
245
171
110
67
34
41
26
16
13
12
8
6
7
2
2
2
3
1
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 290 300 310 320 330 340 370

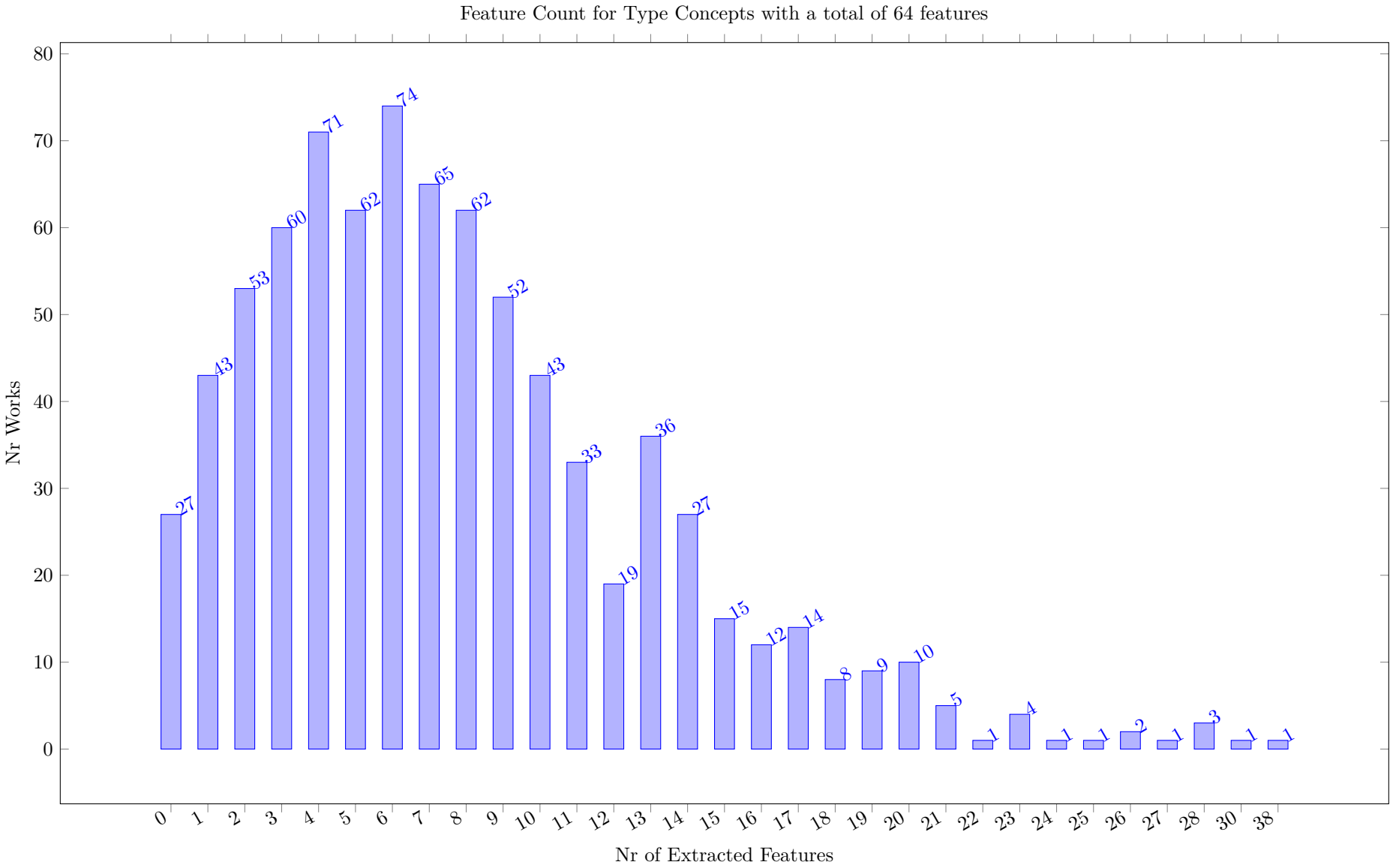
12 Concept Distribution

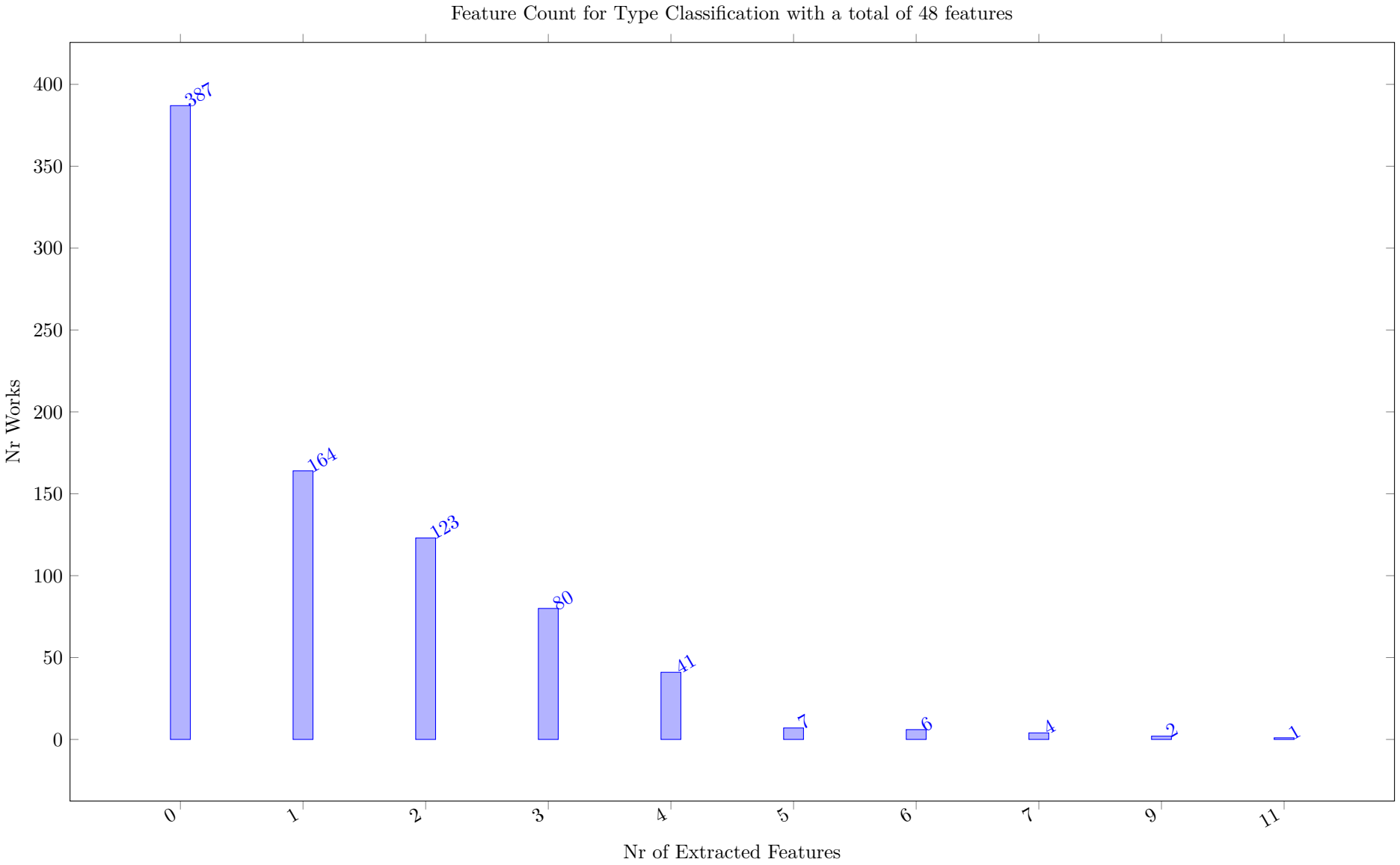
For each concept type, we count how many features are extracted by the individual works that do have a local copy, e.g. for which we can extract features. We can compare the number of features extracted to the number of concepts of a given type, which is stated in the title of the diagram.

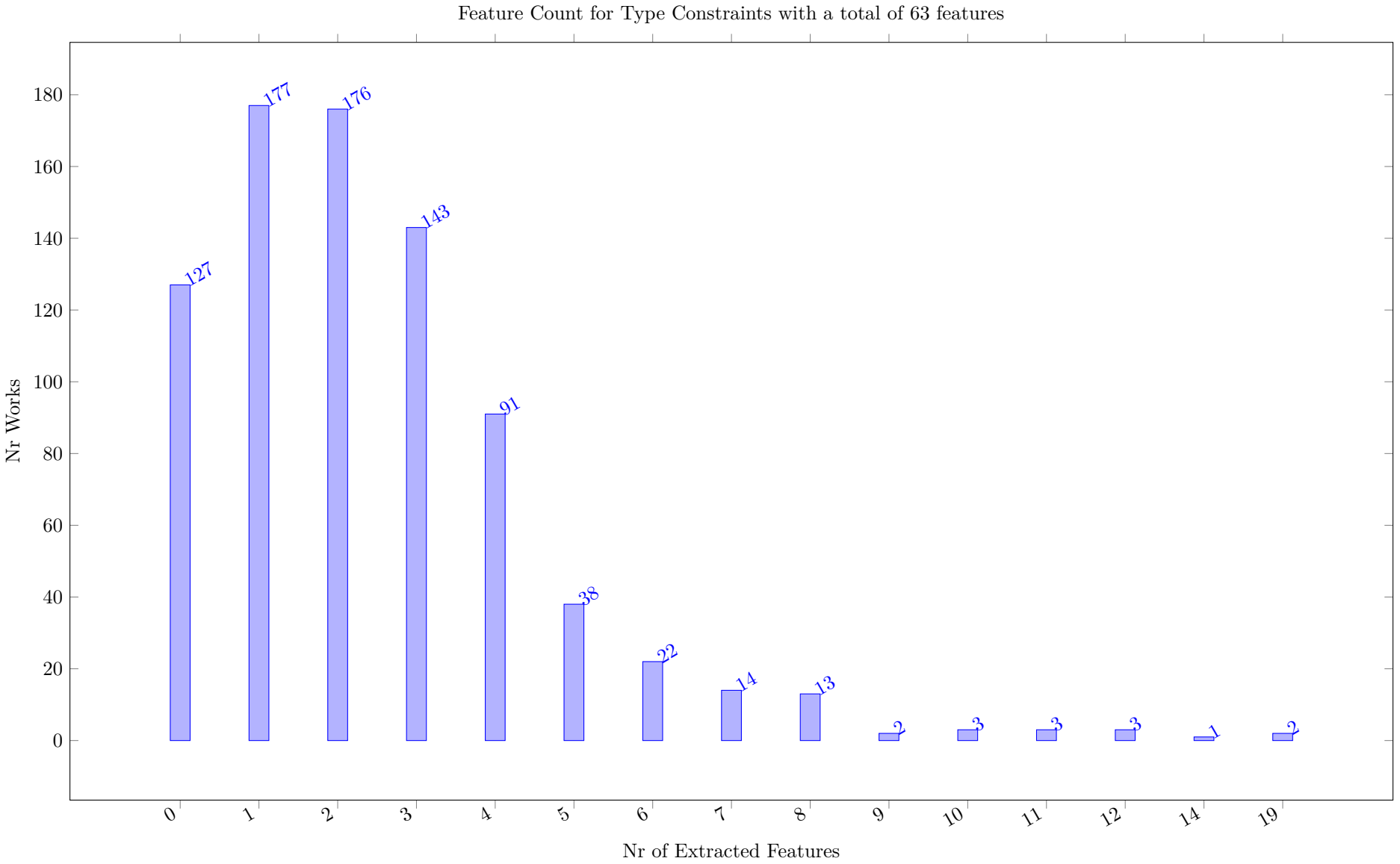
A high count indicates that a work covers many of the concepts of the given type, a low count might mean that our ontology does not have relevant concepts for that work.

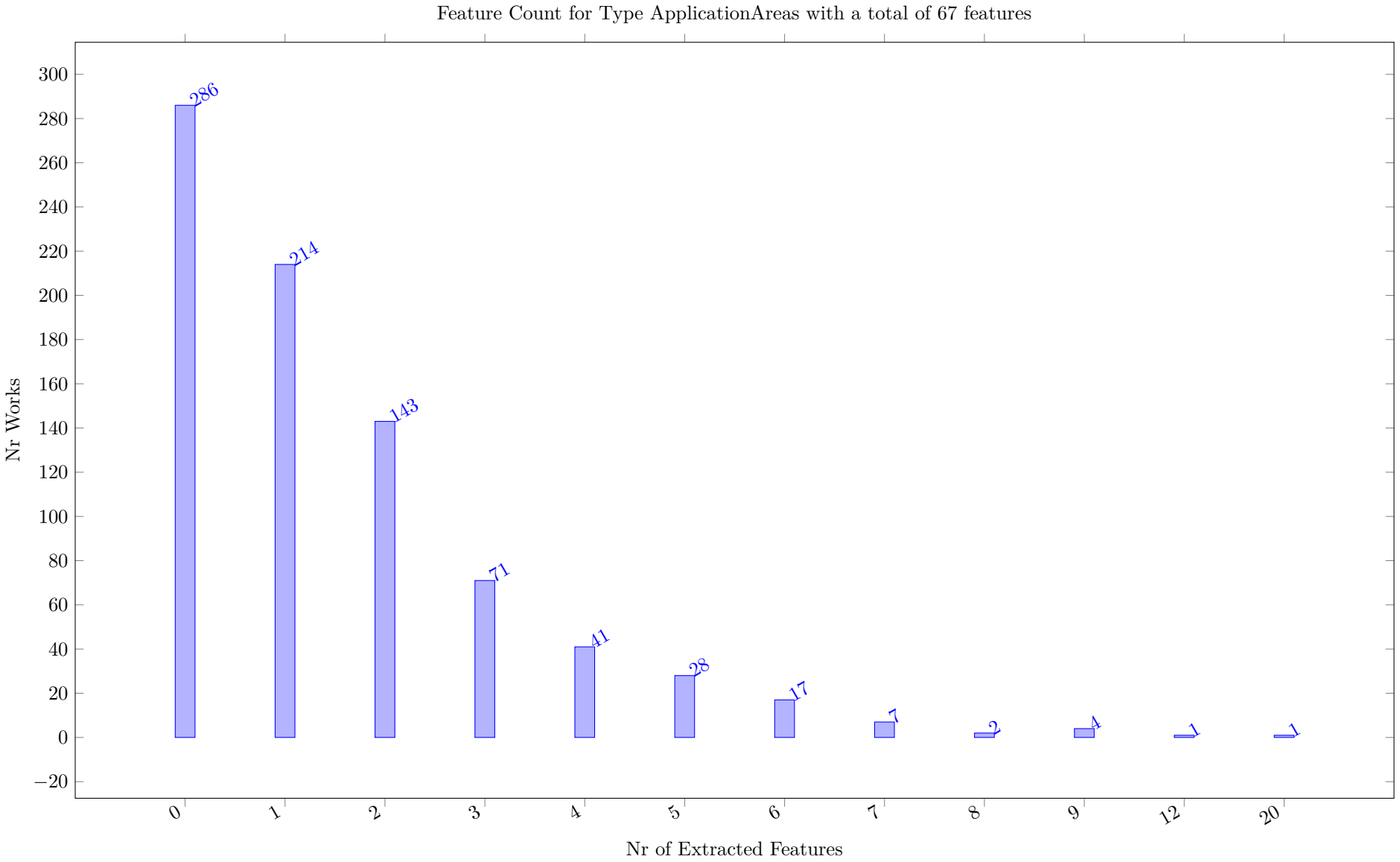

Feature Count for Type Scheduling with a total of 7 features
Nr Works
Nr of Extracted Features
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
−20
0
1
2
3
4
5
6
7
5
6
27
53
90
193
260
181

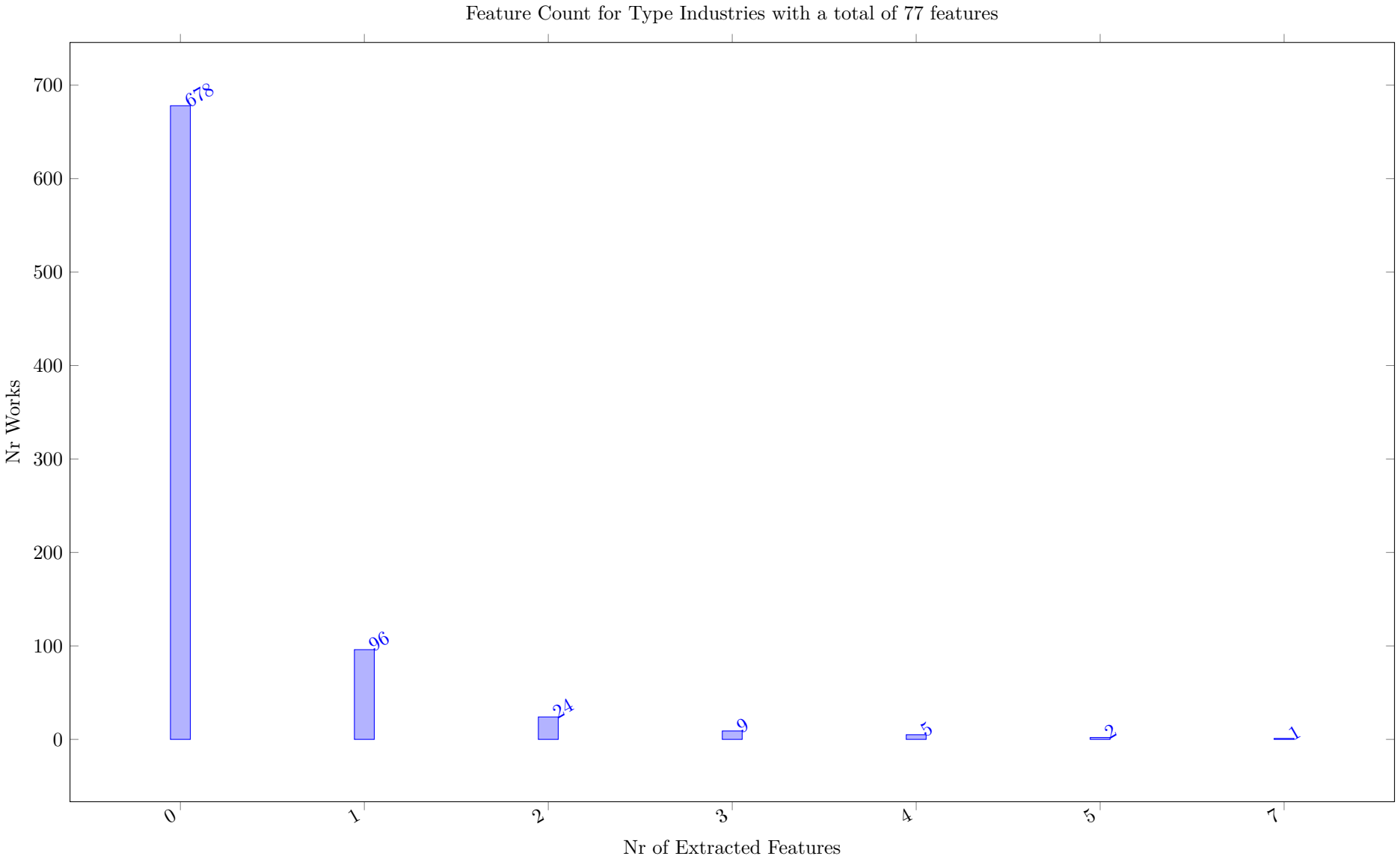

Feature Count for Type CP with a total of 10 features
Nr Works
Nr of Extracted Features
0
20
40
60
80
100
120
140
160
180
0
1
2
3
4
5
6
7
8
9
37
32
141
163
170
114
79
52
19
8

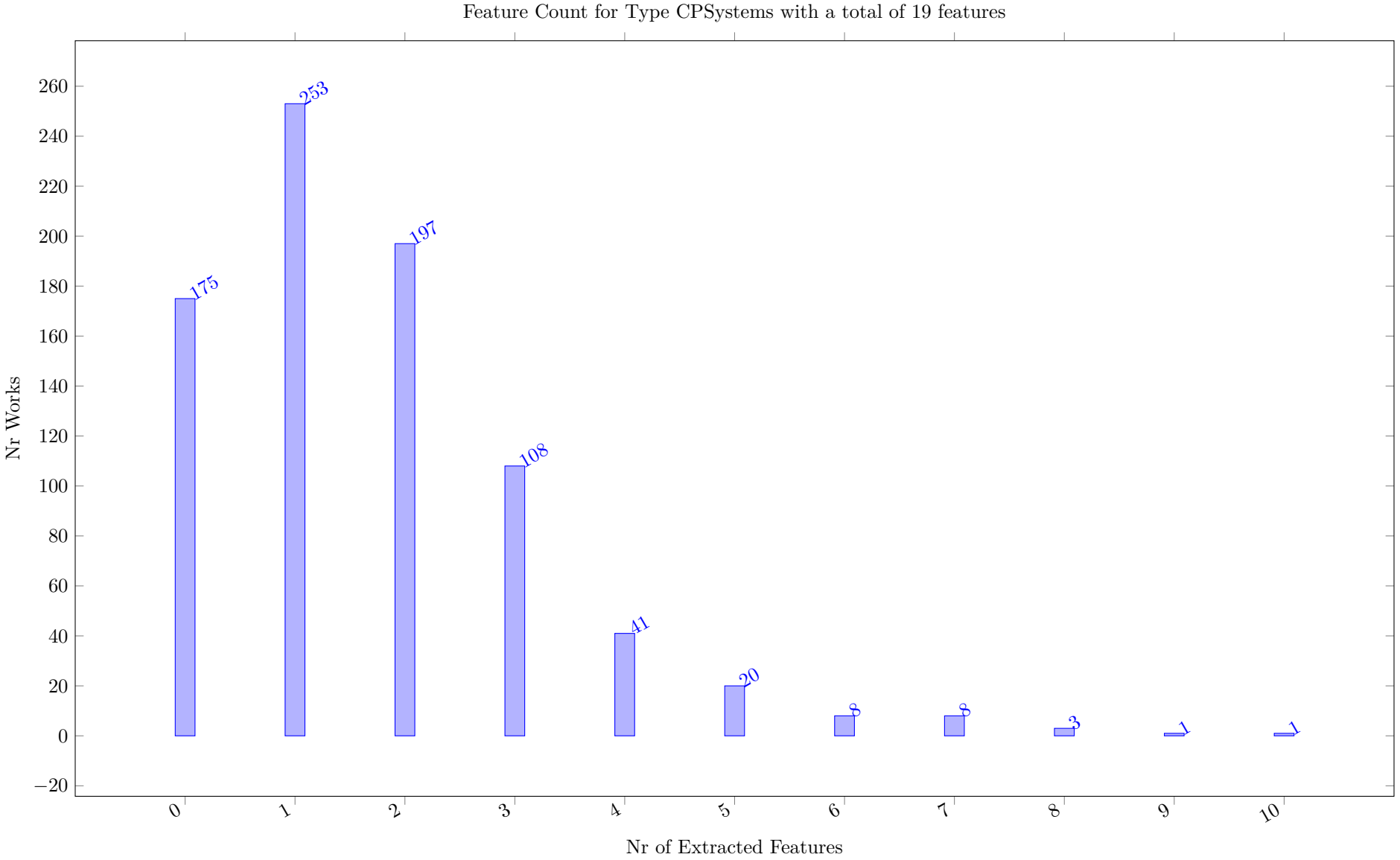

Feature Count for Type Concepts with a total of 64 features
Nr Works
Nr of Extracted Features
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 30 38
27 43 53 60 71 62 74 65 62 52 43 33 19 36 27 15 12 14 8 9 10 5 1 4 1 1 2 1 3 1 1

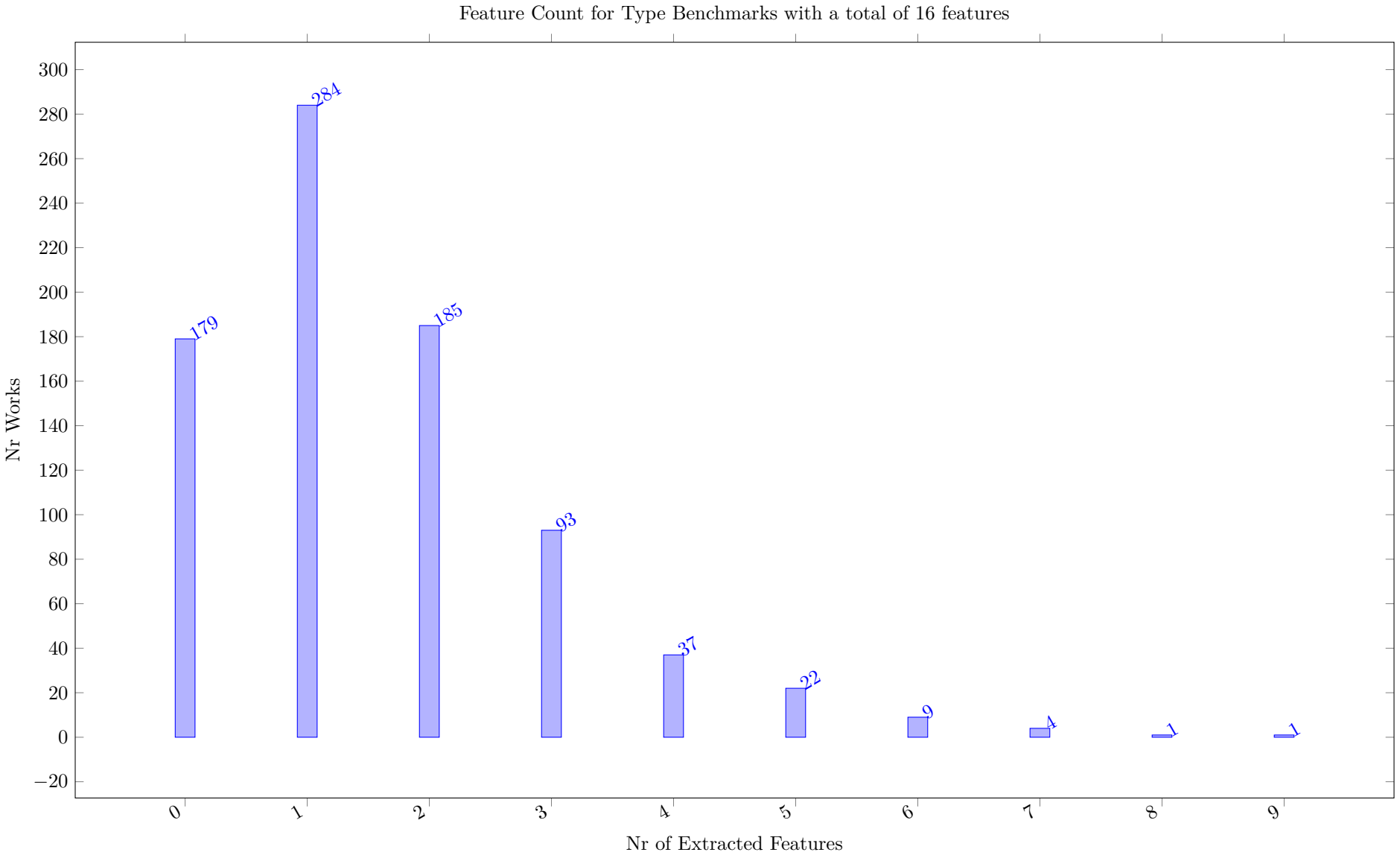

Feature Count for Type Classification with a total of 48 features
Nr Works
Nr of Extracted Features
0
50
100
150
200
250
300
350
400
0
1
2
3
4
5
6
7
9
11
387
164
123
80
41
7
6
4
2
1

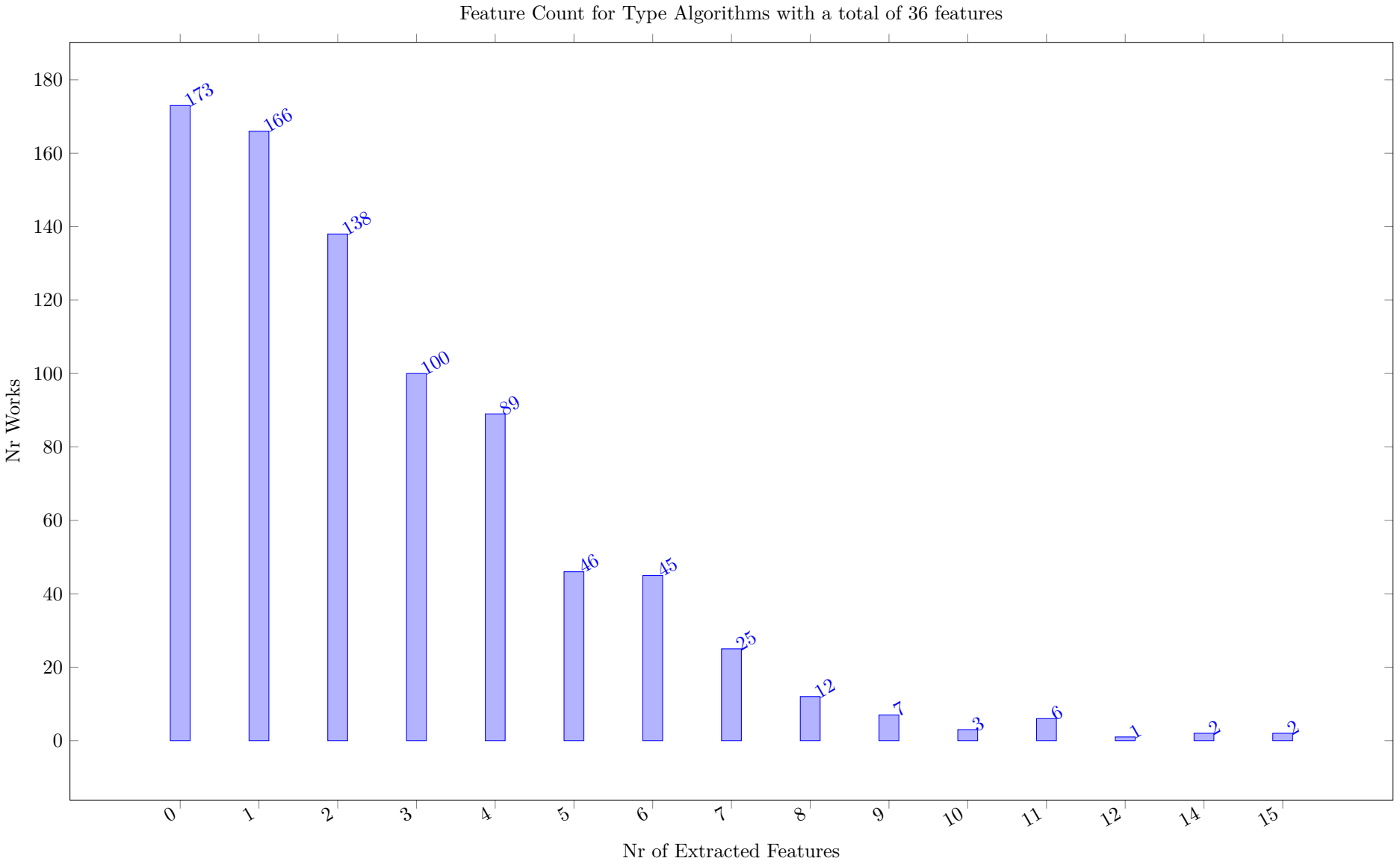

Feature Count for Type Constraints with a total of 63 features
Nr Works
Nr of Extracted Features
0
20
40
60
80
100
120
140
160
180
127
177
176
143
91
38
22
14
13
2
3
3
3
1
2
0
1
2
3
4
5
6
7
8
9
10
11
12
14
19


Feature Count for Type ApplicationAreas with a total of 67 features
Nr Works
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
−20
286
214
143
71
41
28
17
7
2
4
1
1
0
1
2
3
4
5
6
7
8
9
12
20
Nr of Extracted Features


Feature Count for Type Industries with a total of 77 features
Nr Works
700
600
500
400
300
200
100
0
678
96
24
9
5
2
1
0
1
2
3
4
5
7
Nr of Extracted Features


Feature Count for Type CPSystems with a total of 19 features
Nr Works
Nr of Extracted Features
260
240
220
200
180
160
140
120
100
80
60
40
20
0
−20
0
1
2
3
4
5
6
7
8
9
10
175
253
197
108
41
20
8
8
3
1
1


Feature Count for Type Benchmarks with a total of 16 features
Nr Works
Nr of Extracted Features
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
−20
0
1
2
3
4
5
6
7
8
9
179
284
185
93
37
22
9
4
1
1

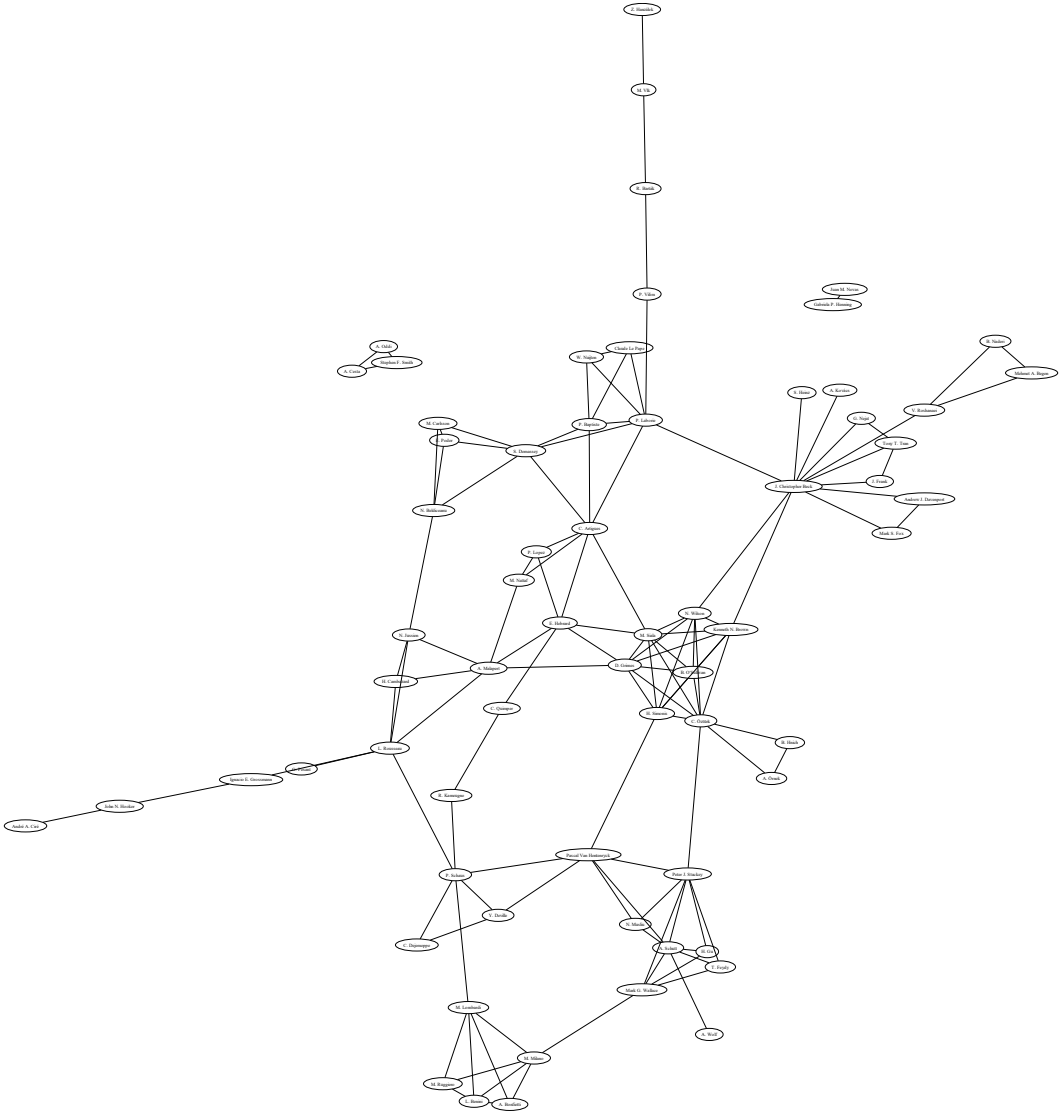

Feature Count for Type Algorithms with a total of 36 features
Nr Works
Nr of Extracted Features
0
20
40
60
80
100
120
140
160
180
0
1
2
3
4
5
6
7
8
9
10
11
12
14
15
173
166
138
100
89
46
45
25
12
7
3
6
1
2
2

13 Coauthor graph

The coauthor plot is created by graphviz, and is based on the coauthor relations extracted from the author fields of the works. Authors with few works are not shown, to avoid a cluttered view. Note that this analysis depends on the use of canonical forms of author names. If bib entries come from any different sources, we will need to check this manually. DBLP seems to be using ORCID values and typically identifies the authors of a work with a canonical representation of their name. Accents and umlauts are other sources of having multiple forms of the name of the same author. Note that the risk of two different authors using the same name should be low for very specific literature surveys, but cannot be checked with the data sources currently used.

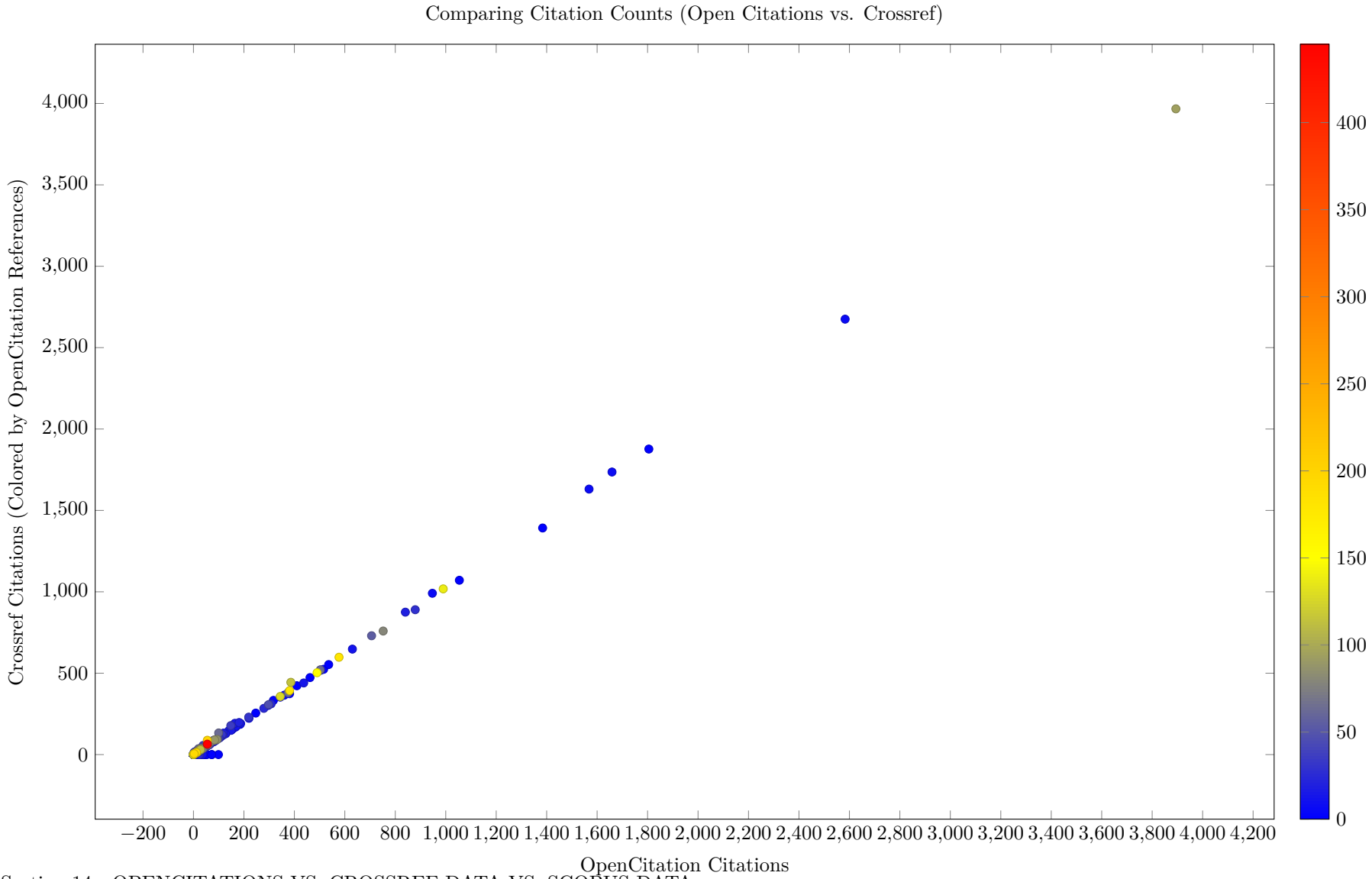
The plots can be made with different layout tools in graphviz, it seems that fdp produces the most consistent visually attractive plots for this type of display. This probably needs more work on parameter settings to be fully automated.

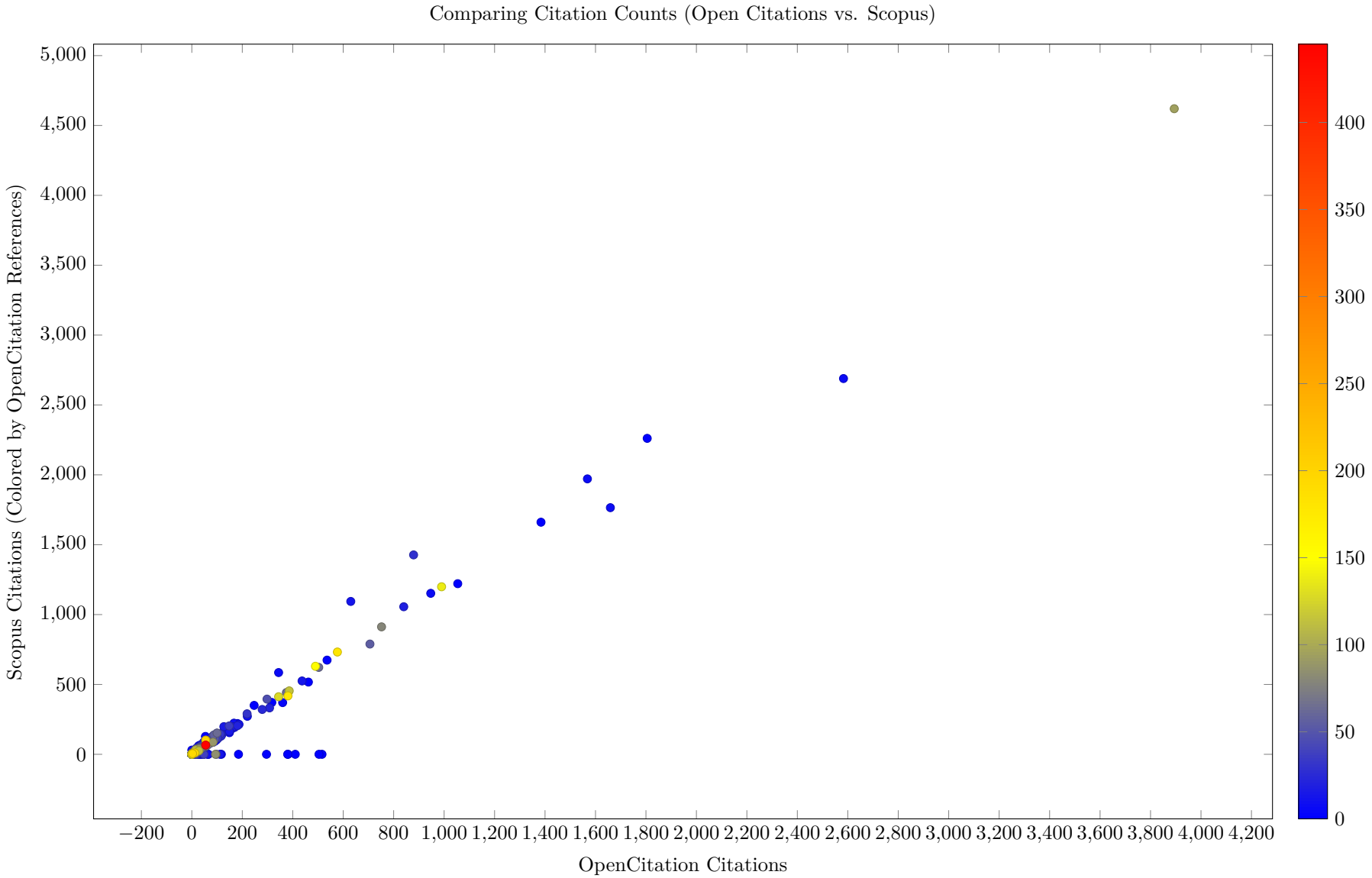
Figure 1: Coauthor Graph Drawn with fdp (Graphviz)

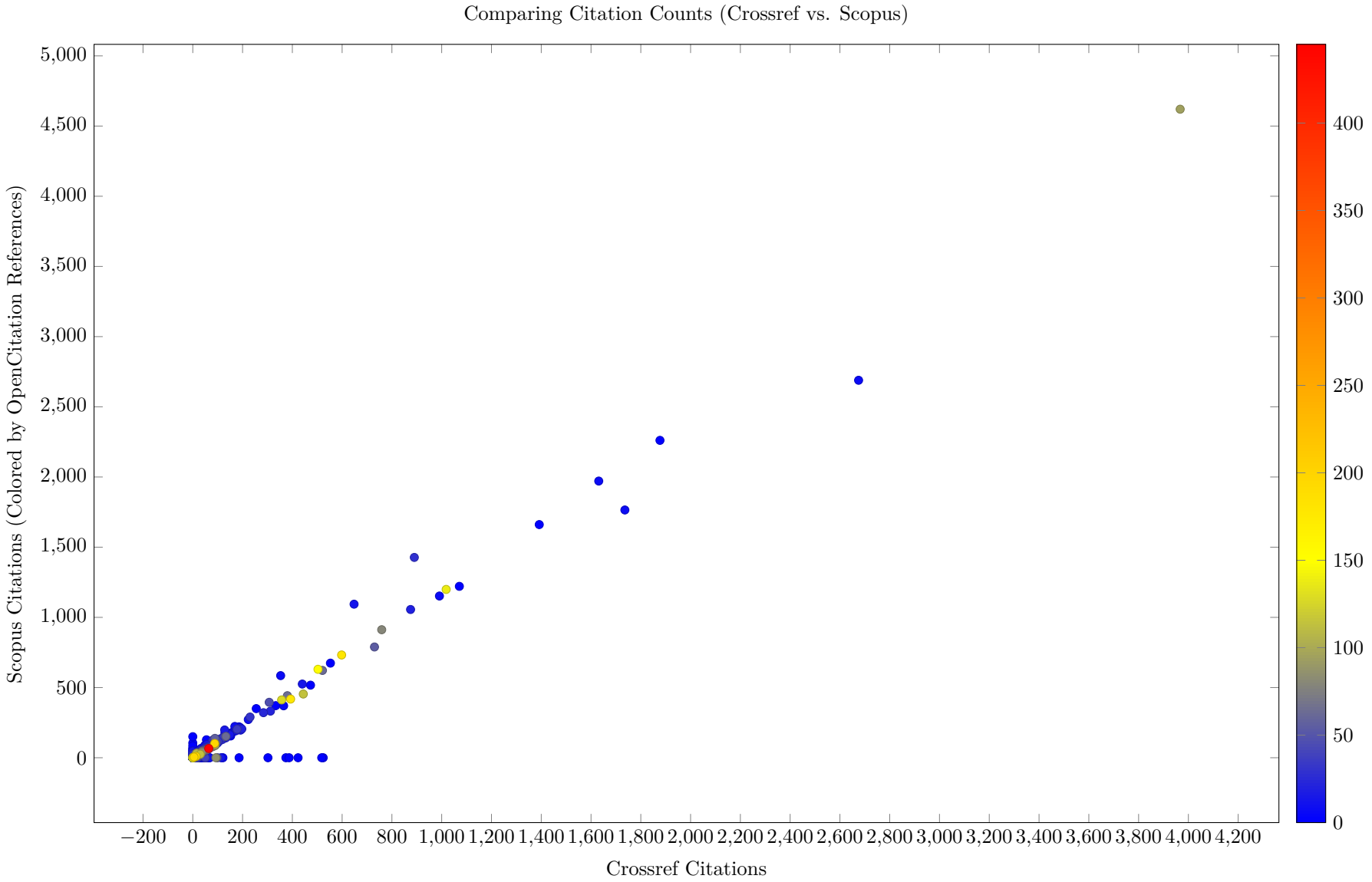


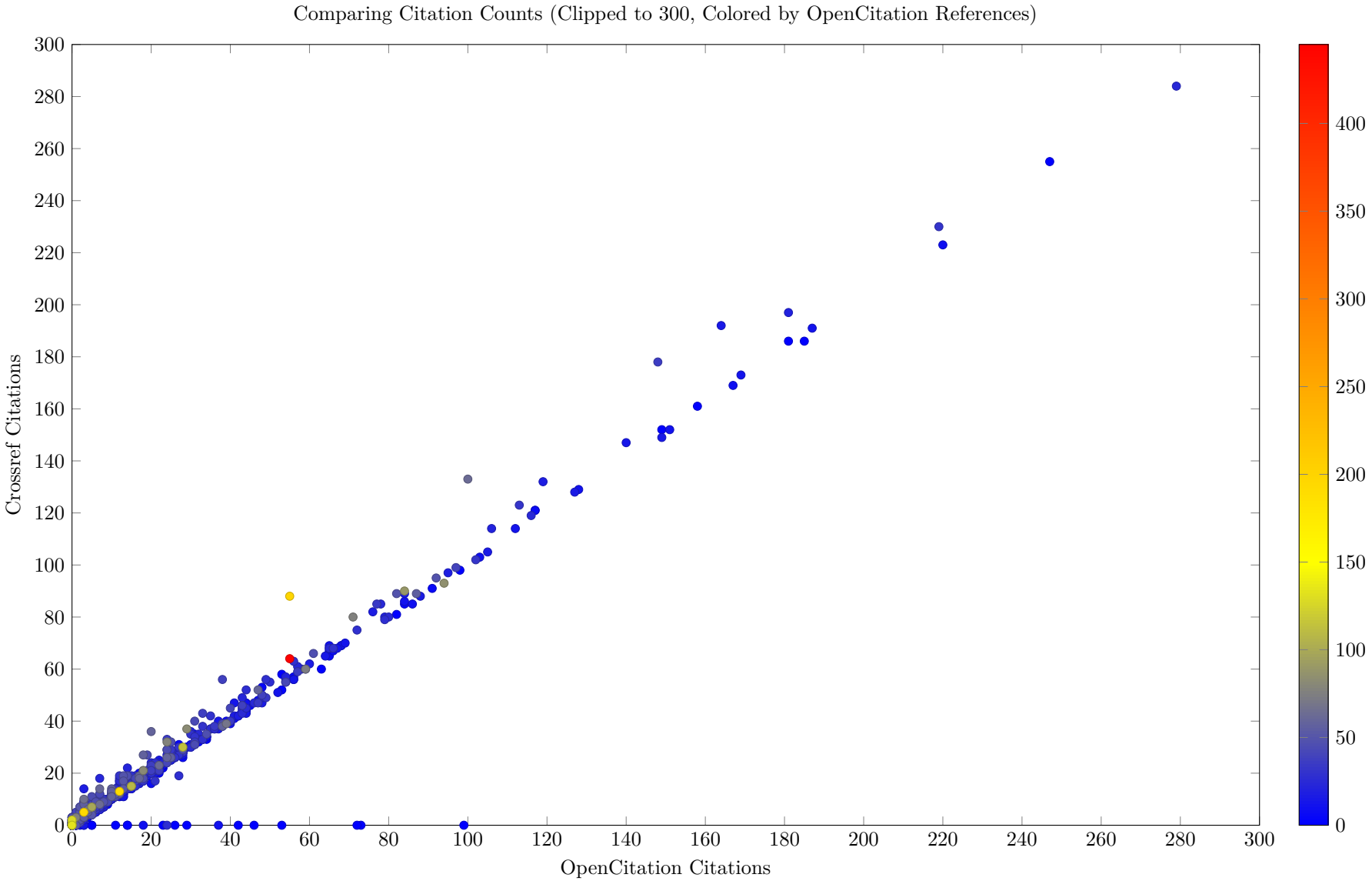
14 OpenCitations vs. Crossref Data vs. Scopus Data

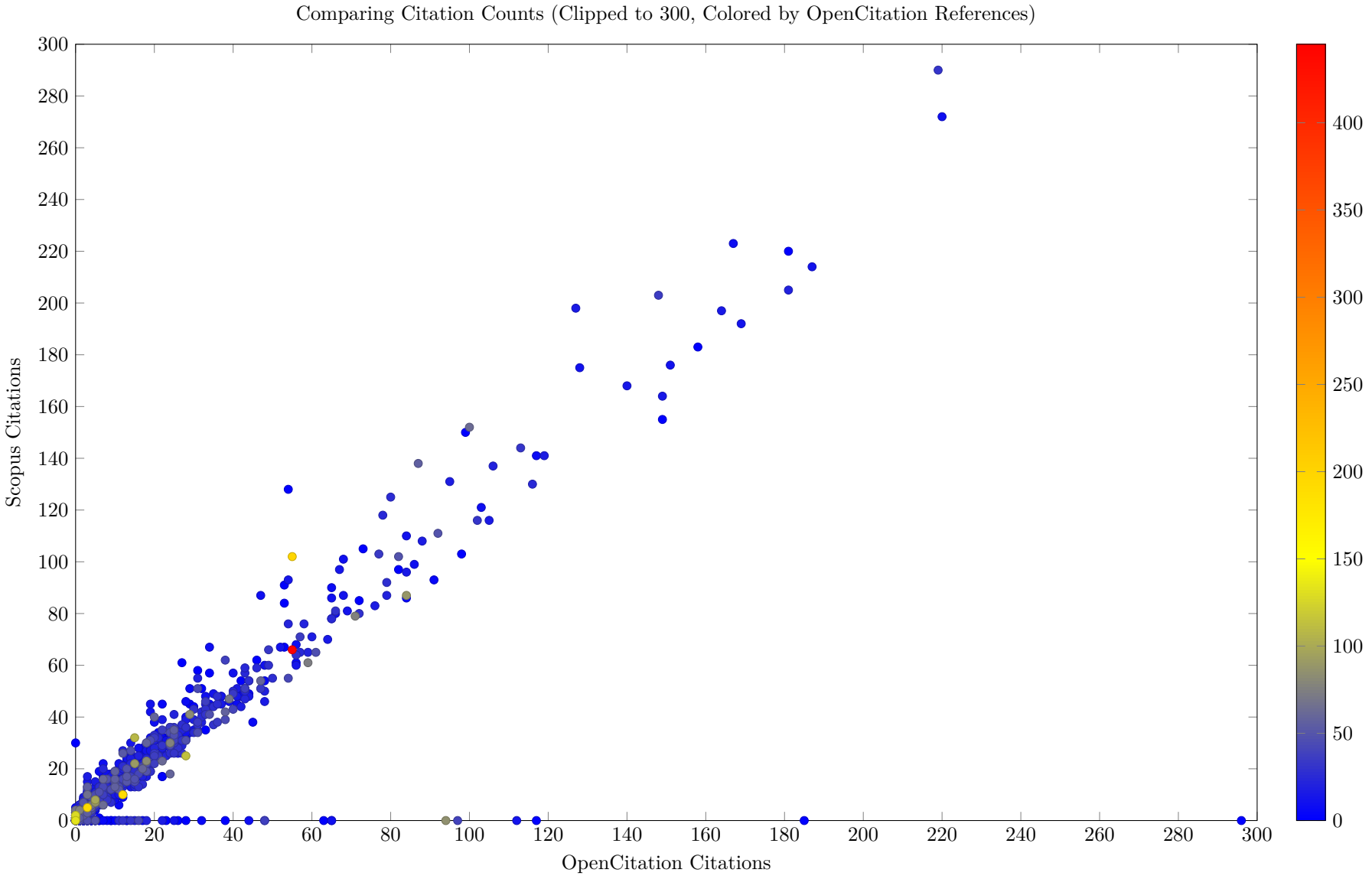
14.1 Citation Comparison

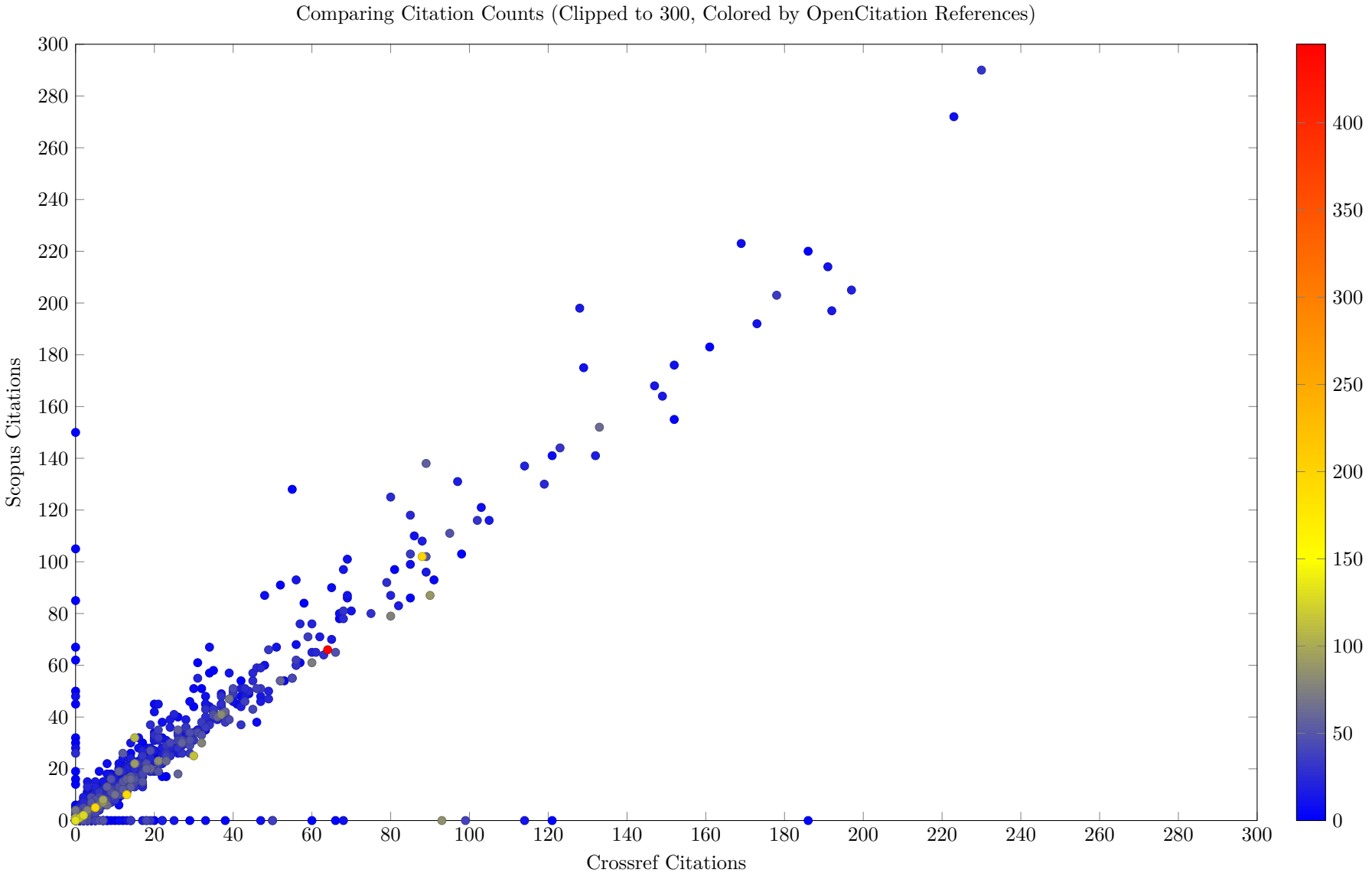



Comparing Citation Counts (Open Citations vs. Scopus)
Scopus Citations (Colored by OpenCitation References)
OpenCitation Citations
5,000
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
−200 0 200 400 600 800 1,000 1,200 1,400 1,600 1,800 2,000 2,200 2,400 2,600 2,800 3,000 3,200 3,400 3,600 3,800 4,000 4,200
400
350
300
250
200
150
100
50
0

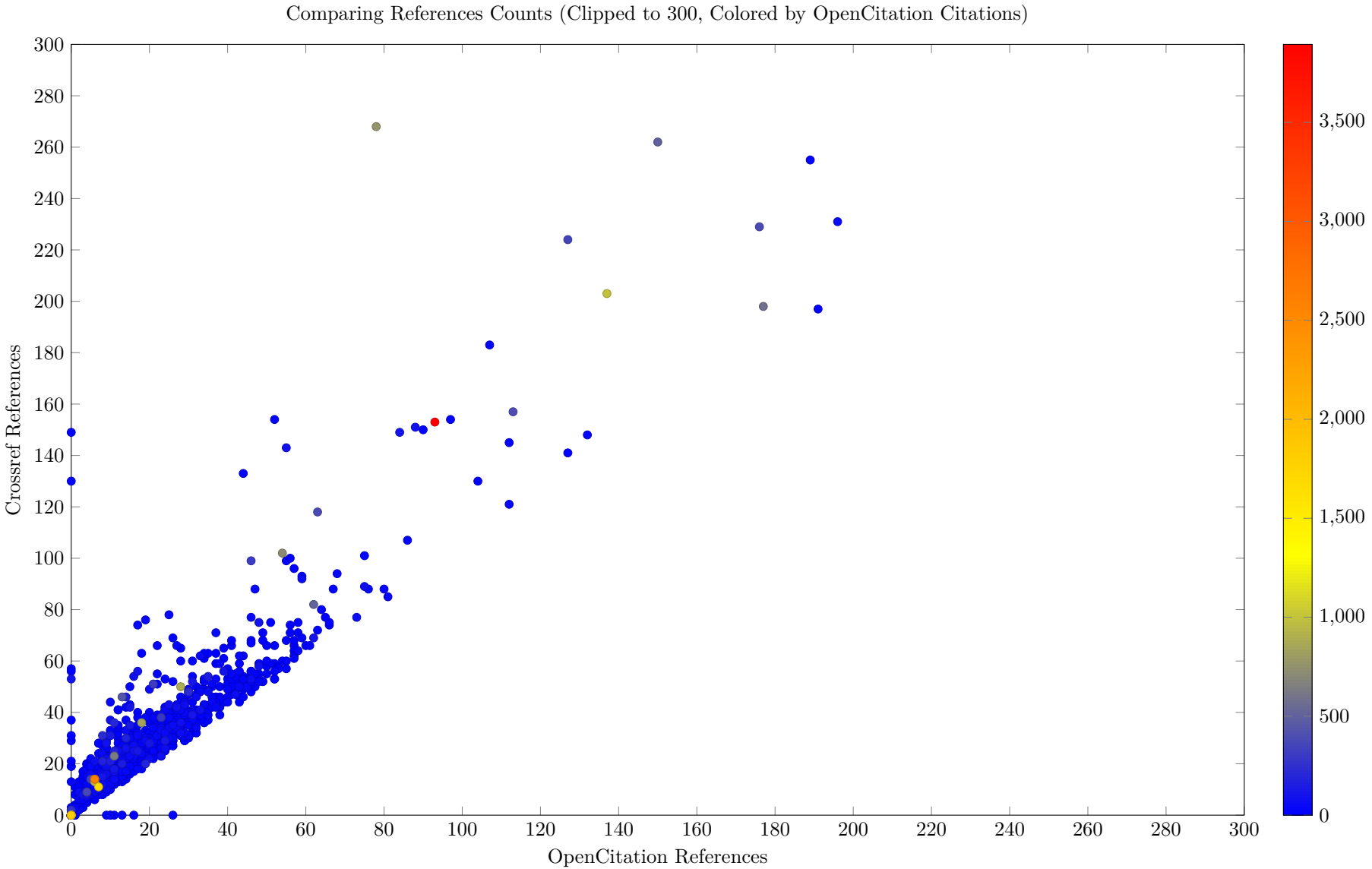

Comparing Citation Counts (Crossref vs. Scopus)
Scopus Citations (Colored by OpenCitation References)
Crossref Citations
5,000
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
−200
0
200
400
600
800
1,000
1,200
1,400
1,600
1,800
2,000
2,200
2,400
2,600
2,800
3,000
3,200
3,400
3,600
3,800
4,000
4,200
400
350
300
250
200
150
100
50
0


Comparing Citation Counts (Clipped to 300, Colored by OpenCitation References)
Crossref Citations
OpenCitation Citations
0
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
0
50
100
150
200
250
300
350
400

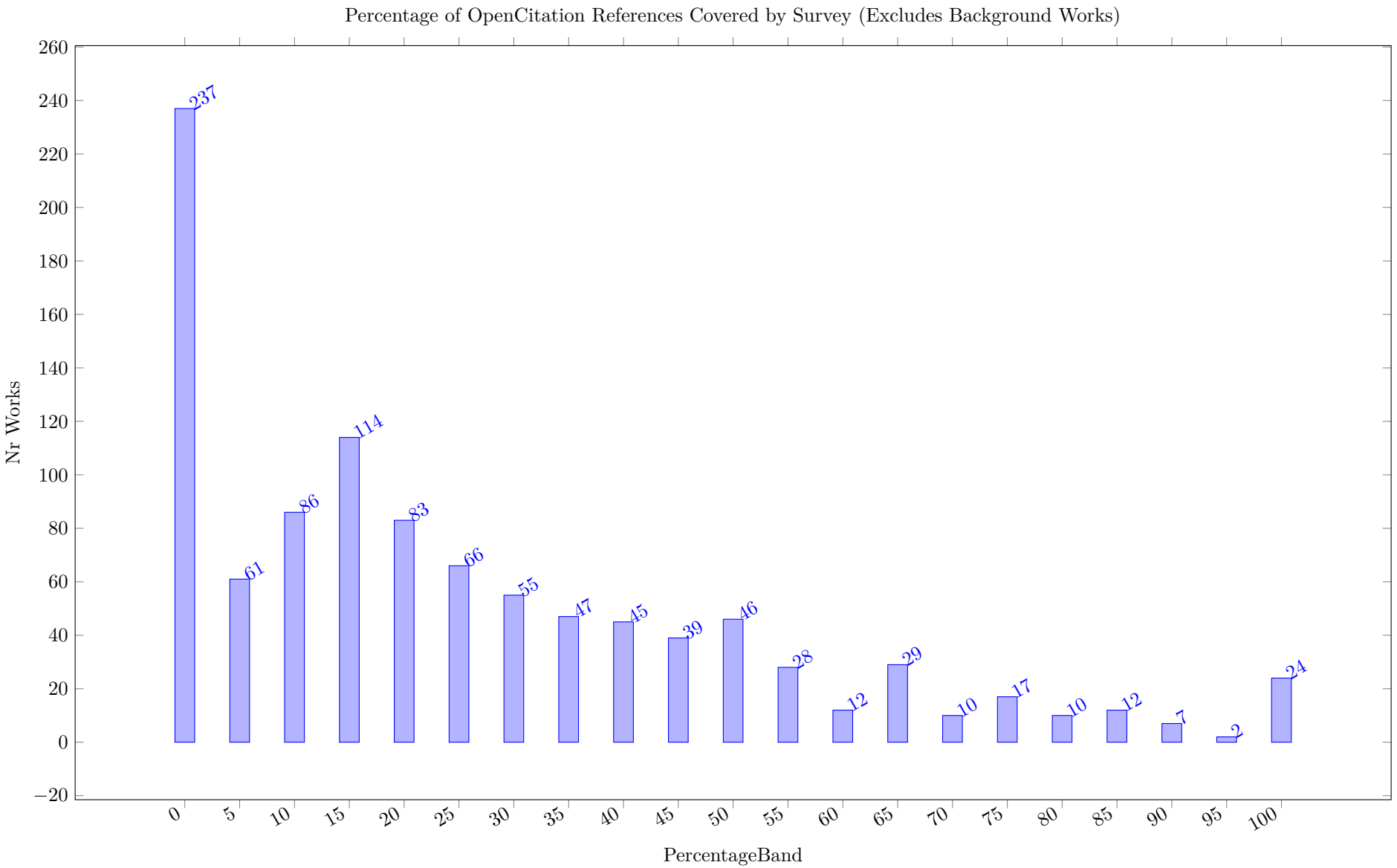

Comparing Citation Counts (Clipped to 300, Colored by OpenCitation References)
Scopus Citations
OpenCitation Citations
0
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
0
50
100
150
200
250
300
350
400

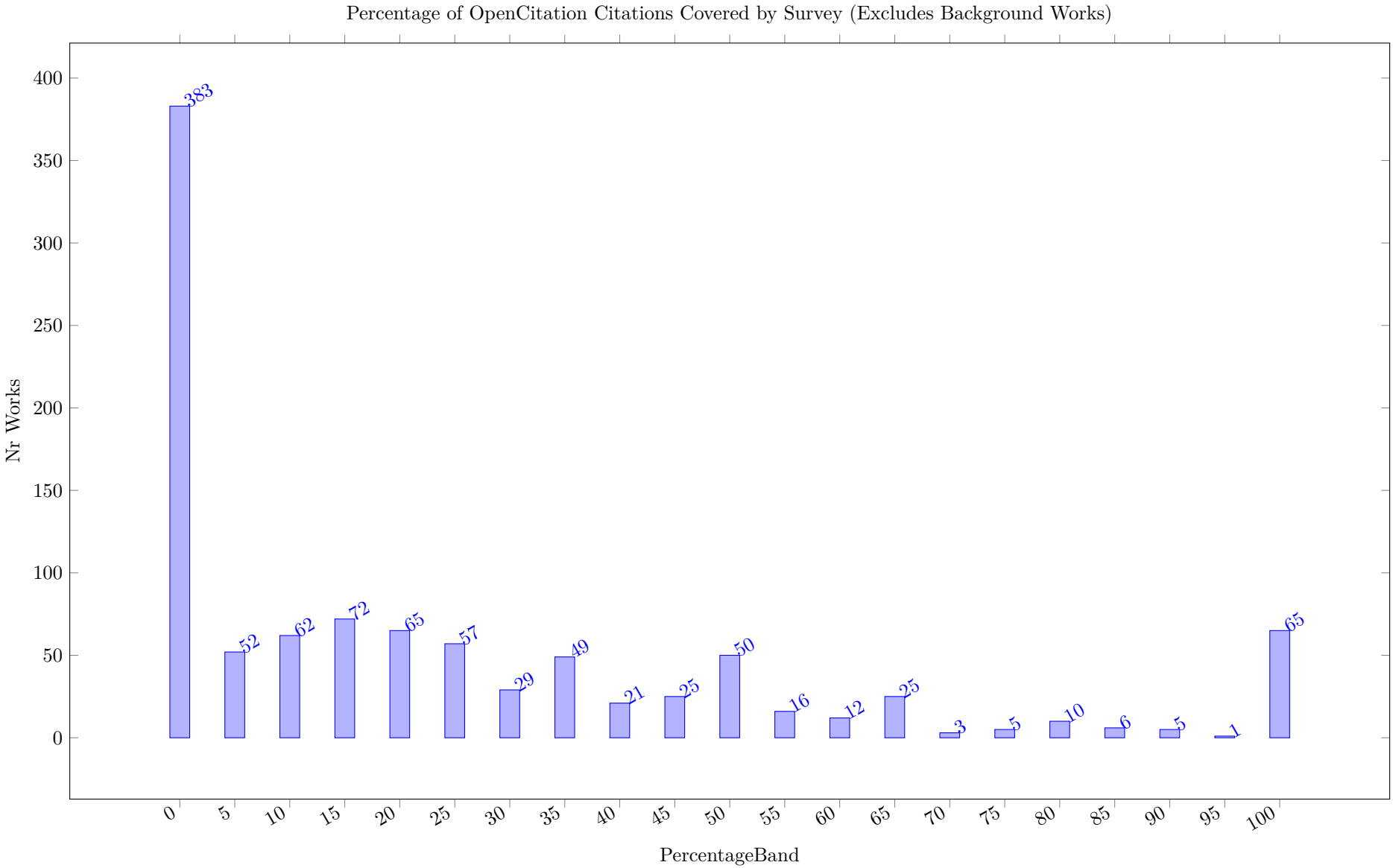

Comparing Citation Counts (Clipped to 300, Colored by OpenCitation References)
Scopus Citations
Crossref Citations
0
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
0
50
100
150
200
250
300
350
400

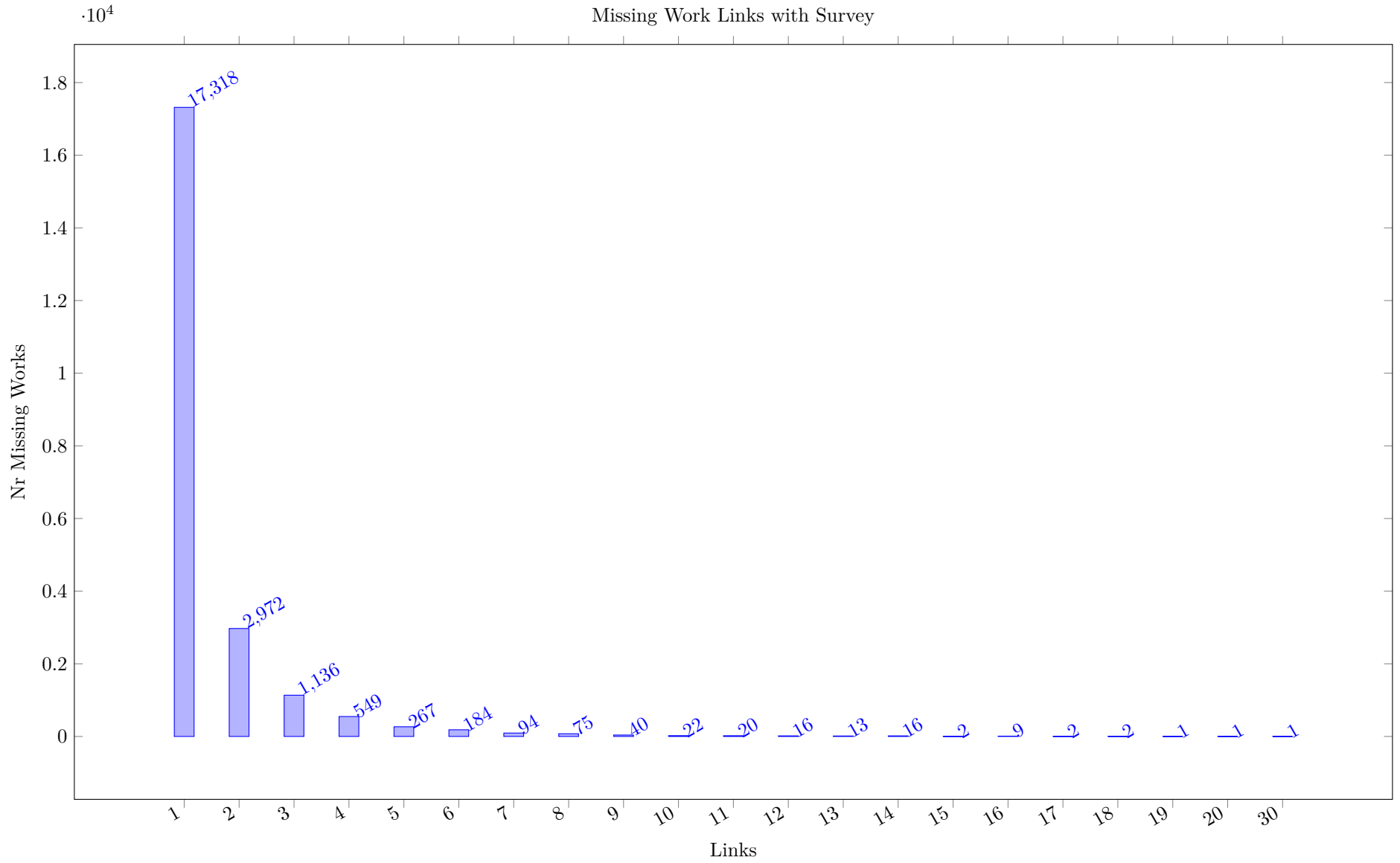
14.2 References Comparison



14.3 Percentage Cover




Percentage of OpenCitation Citations Covered by Survey (Excludes Background Works)
Nr Works
PercentageBand
0
50
100
150
200
250
300
350
400
0
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100
383
52
62
72
65
57
29
49
21
25
50
16
12
25
3
5
10
6
5
1
65


Missing Work Links with Survey
$\cdot 10^4$
Nr Missing Works
Links
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
17,318
2,972
1,136
549
267
184
94
75
40
22
20
16
13
16
2
9
2
2
1
1
1
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
30

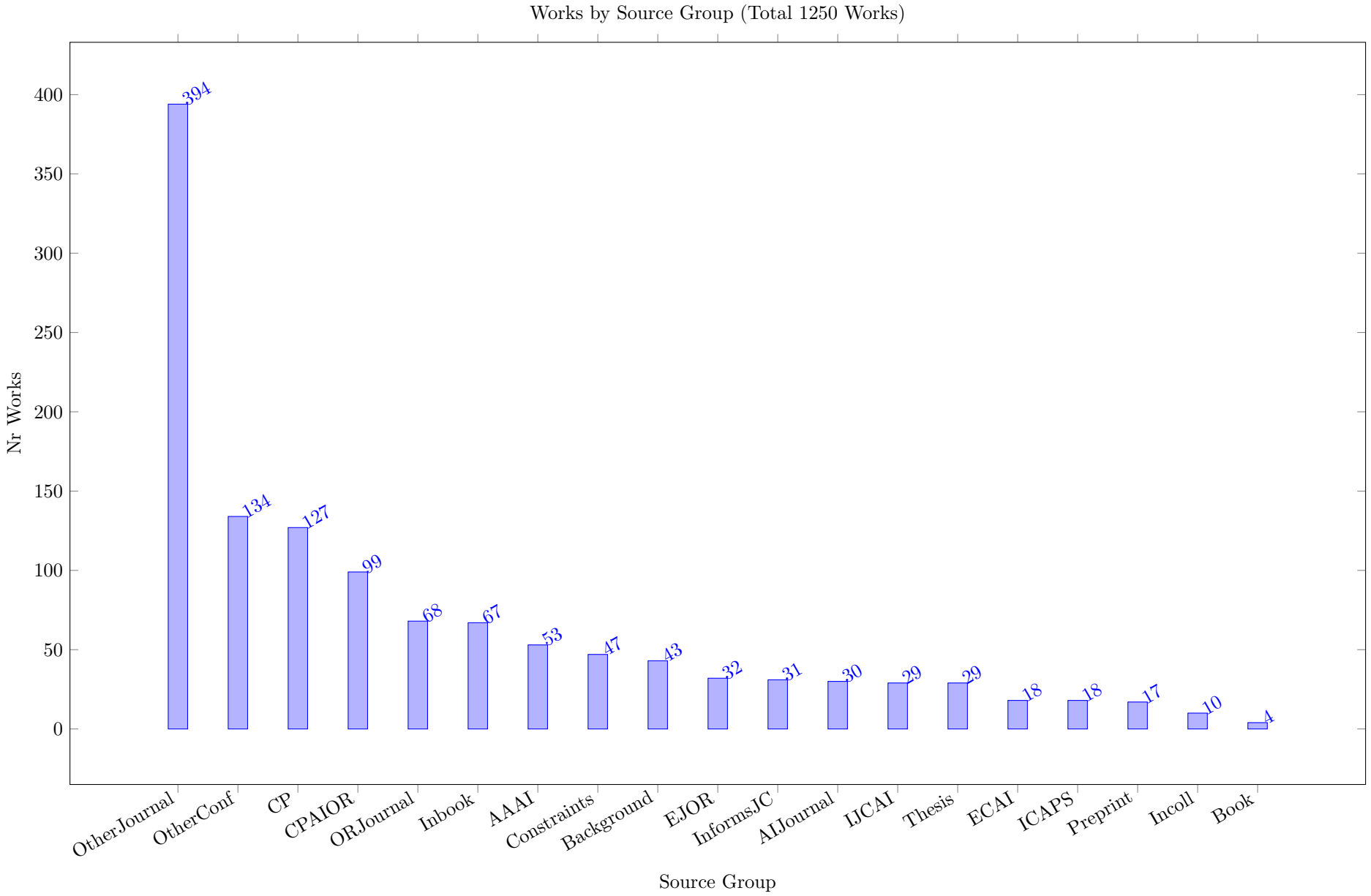
15 Citations by Year and Source Group

We have defined a number of source groups to group publications of a given type together, without using the full conference series and journal distinctions for grouping. The following table lists all defined source groups for this survey. Adding groups requires updates to the source code.

Table 11: Source Groups

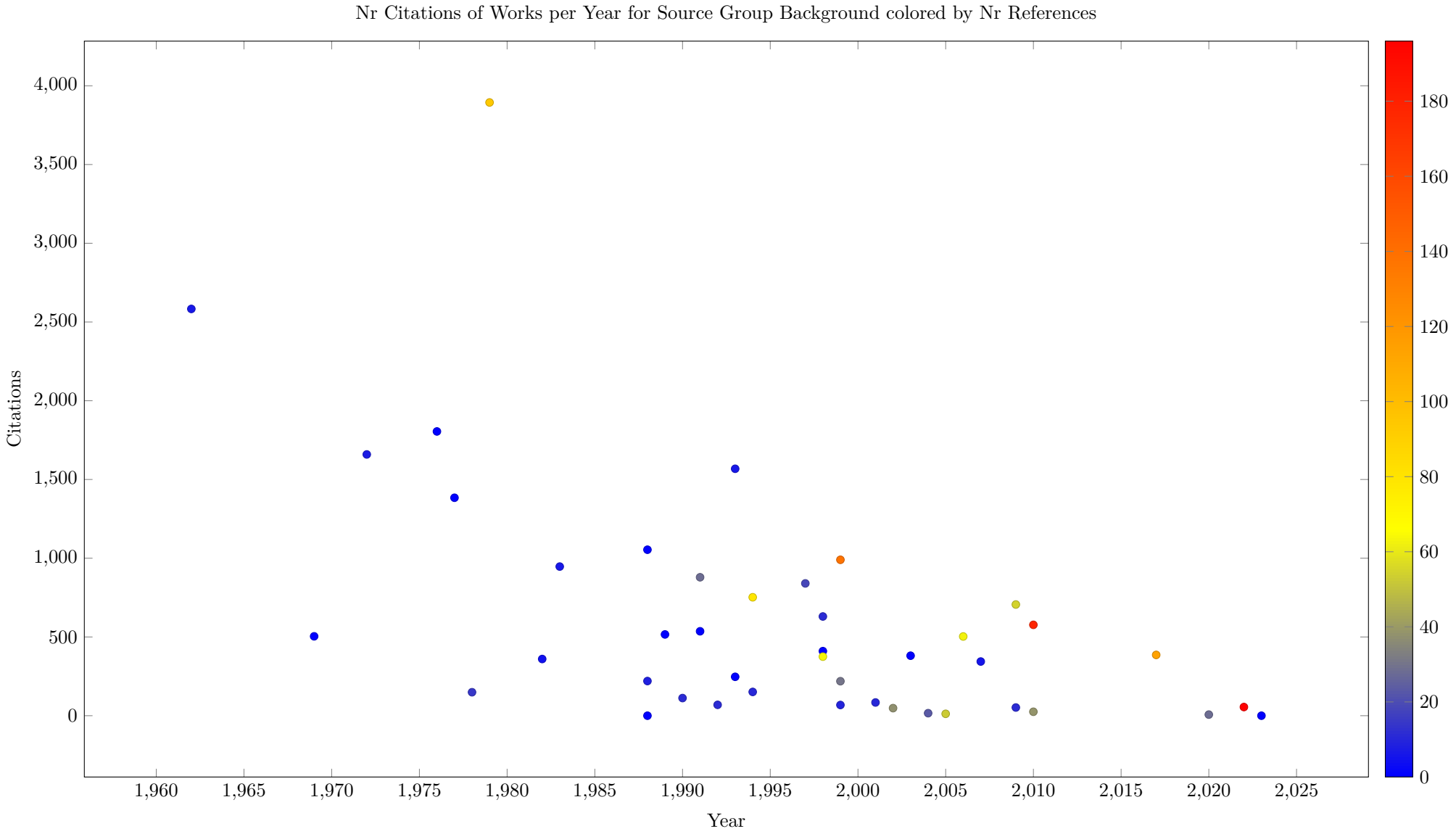
Name	Description
Background	Background material
CP	The CP conference (from 1995)
CPAIOR	The CPAIOR conference (starting 2004)
ICAPS	The ICAPS conference
AAAI	AAAI conference
IJCAI	IJCAI Conference
ECAI	ECAI Conference
OtherConf	Any other conference
Constraints	The Constraint Journal
EJOR	The European Journal on Operations Research
InformsJC	The Informs Journal on Computing
AIJournal	Other AI Journals
ORJournal	Other OR Journals
JoPR	Journal of Peace Research
JoCR	Journal of Conflict Resolution
CMPS	Conflict Management and Piece Science
Preprint	A non reviewed preprint
OtherJournal	Any other Journal
Book	A book
Inbook	Chapter in a Book
Incoll	Chapter in a Collection
Thesis	A thesis
Other	Any other published work

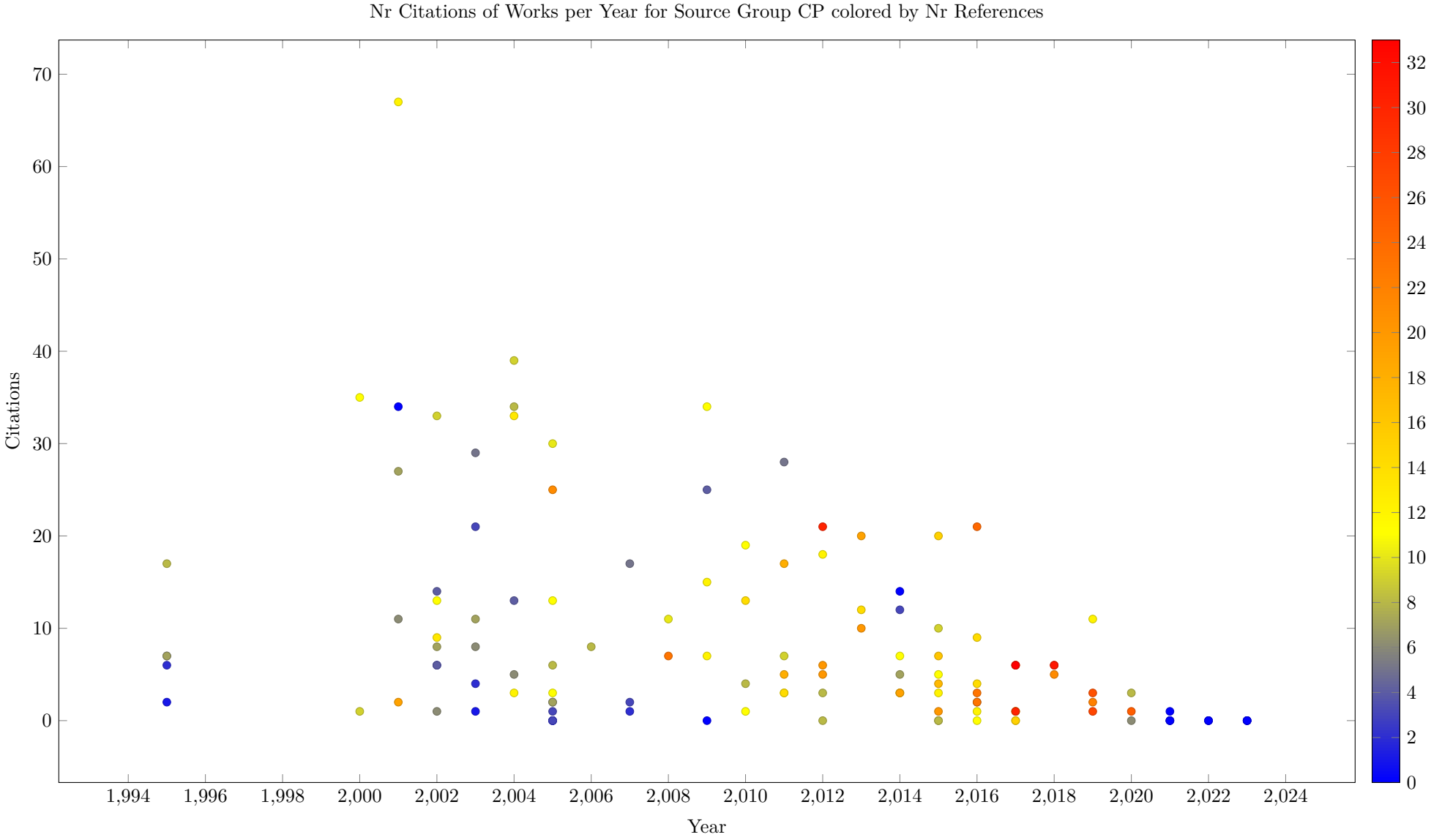
The first plot in this section shows how many works in each source group have been published. This considers the complete time period of the survey.


Works by Source Group (Total 1250 Works)
Nr Works
Source Group
0
50
100
150
200
250
300
350
400
394
134
127
99
68
67
53
47
43
32
31
30
29
29
18
18
17
10
4
OtherJournal
OtherConf
CP
CPAIOR
ORJournal
Inbook
AAAI
Constraints
Background
EJOR
InformsJC
AIJournal
IJCAI
Thesis
ECAI
ICAPS
Preprint
Incoll
Book

15.1 Source Group Citations by Year

We plot for each source group the number of citations obtained by papers published in a given year. This plot gives both an indication in which period the source group was active, and how significant the works in the source are. It is of course natural that more recent papers have fewer citations than papers published many tears ago.


Nr Citations of Works per Year for Source Group Background colored by Nr References
Citations
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
1,960
1,965
1,970
1,975
1,980
1,985
1,990
1,995
2,000
2,005
2,010
2,015
2,020
2,025
Year
180
160
140
120
100
80
60
40
20
0


Nr Citations of Works per Year for Source Group CP colored by Nr References
Citations
0
10
20
30
40
50
60
70
1,994
1,996
1,998
2,000
2,002
2,004
2,006
2,008
2,010
2,012
2,014
2,016
2,018
2,020
2,022
2,024
Year
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2
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6
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10
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18
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28
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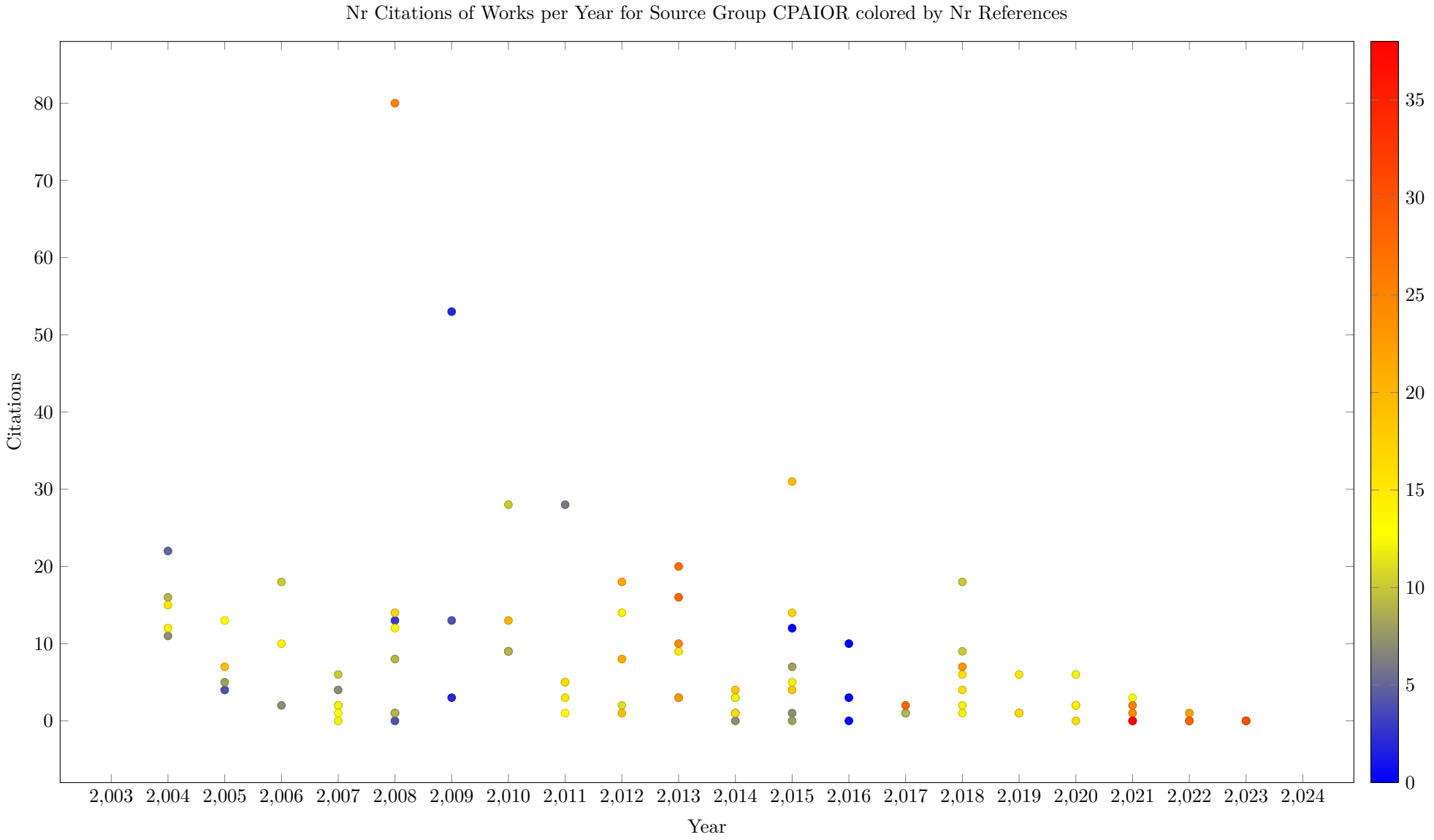
32


Nr Citations of Works per Year for Source Group CPAIOR colored by Nr References
Citations
0
10
20
30
40
50
60
70
80
Year
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2,005
2,006
2,007
2,008
2,009
2,010
2,011
2,012
2,013
2,014
2,015
2,016
2,017
2,018
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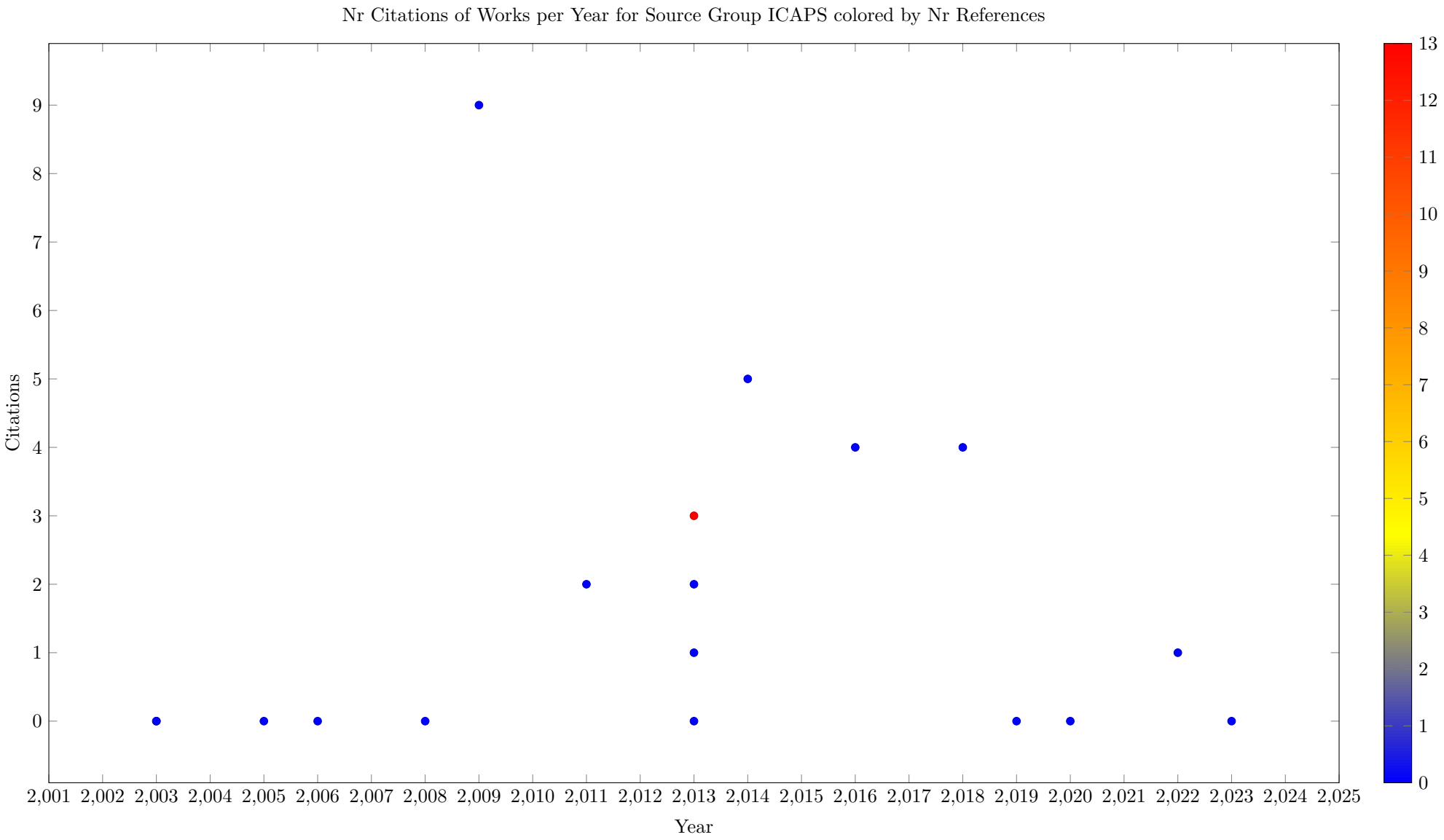
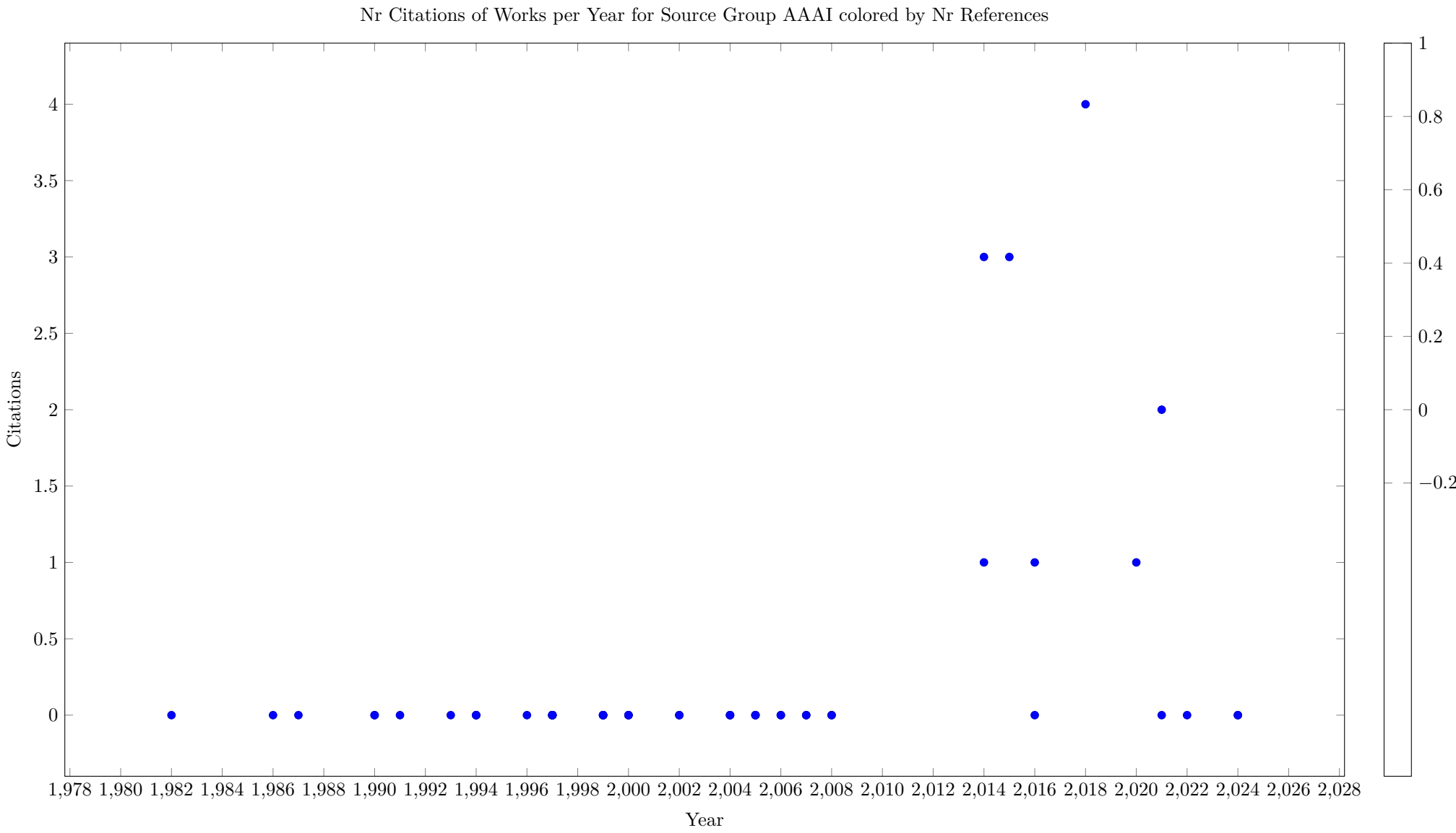

Nr Citations of Works per Year for Source Group ICAPS colored by Nr References
Citations
0
1
2
3
4
5
6
7
8
9
Year
2,001 2,002 2,003 2,004 2,005 2,006 2,007 2,008 2,009 2,010 2,011 2,012 2,013 2,014 2,015 2,016 2,017 2,018 2,019 2,020 2,021 2,022 2,023 2,024 2,025
0 1 2 3 4 5 6 7 8 9 10 11 12 13


Nr Citations of Works per Year for Source Group AAAI colored by Nr References
Citations
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1
1.5
2
2.5
3
3.5
4
Year
1,978 1,980 1,982 1,984 1,986 1,988 1,990 1,992 1,994 1,996 1,998 2,000 2,002 2,004 2,006 2,008 2,010 2,012 2,014 2,016 2,018 2,020 2,022 2,024 2,026 2,028
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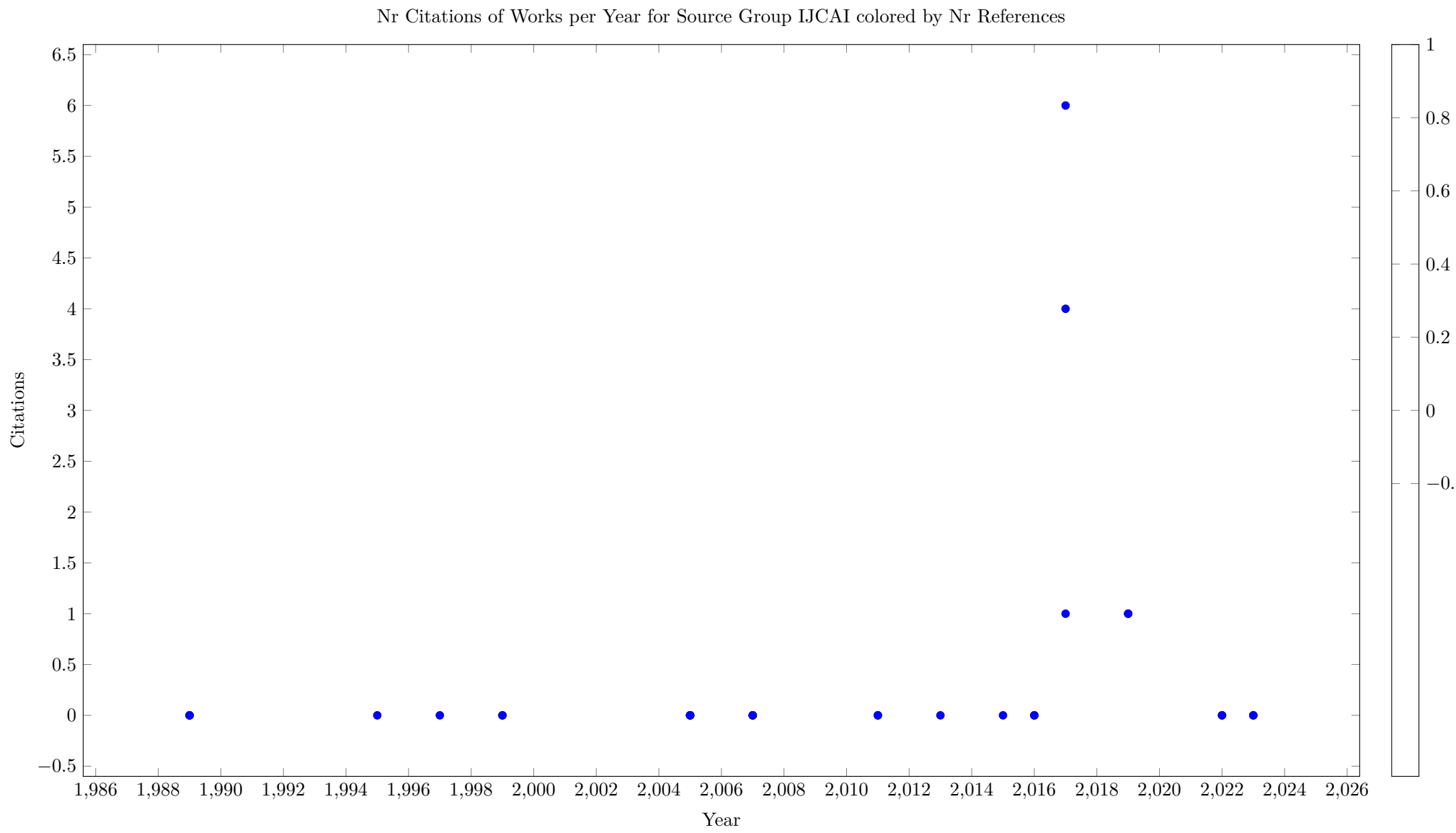
0.6
0.4
0.2
0
−0.2


Nr Citations of Works per Year for Source Group IJCAI colored by Nr References
Citations
Year
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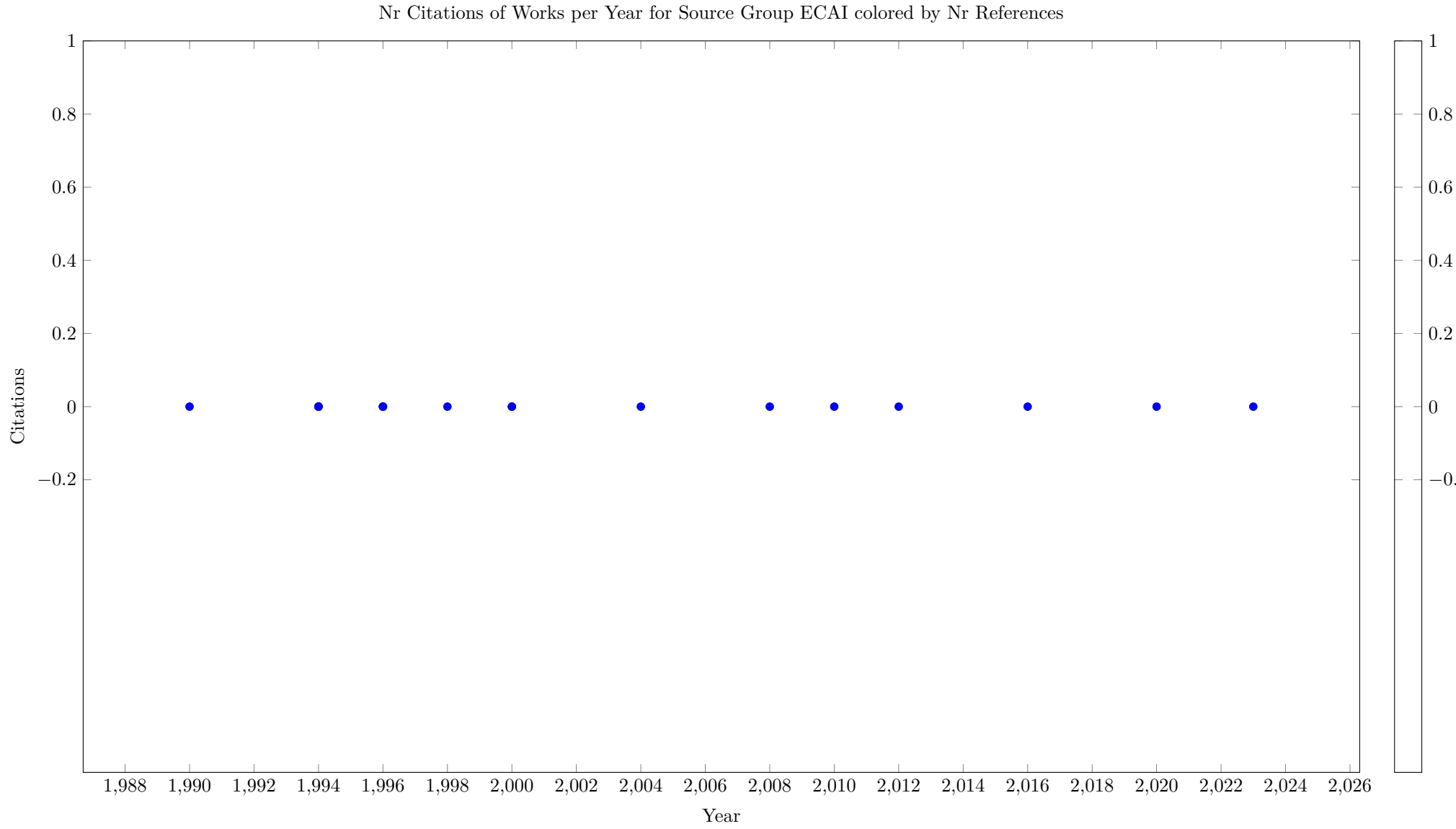
6
5.5
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
−0.5
1,986
1,988
1,990
1,992
1,994
1,996
1,998
2,000
2,002
2,004
2,006
2,008
2,010
2,012
2,014
2,016
2,018
2,020
2,022
2,024
2,026
1
0.8
0.6
0.4
0.2
0
−0.


Nr Citations of Works per Year for Source Group ECAI colored by Nr References
Citations
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0.6
0.4
0.2
0
−0.2
1,988
1,990
1,992
1,994
1,996
1,998
2,000
2,002
2,004
2,006
2,008
2,010
2,012
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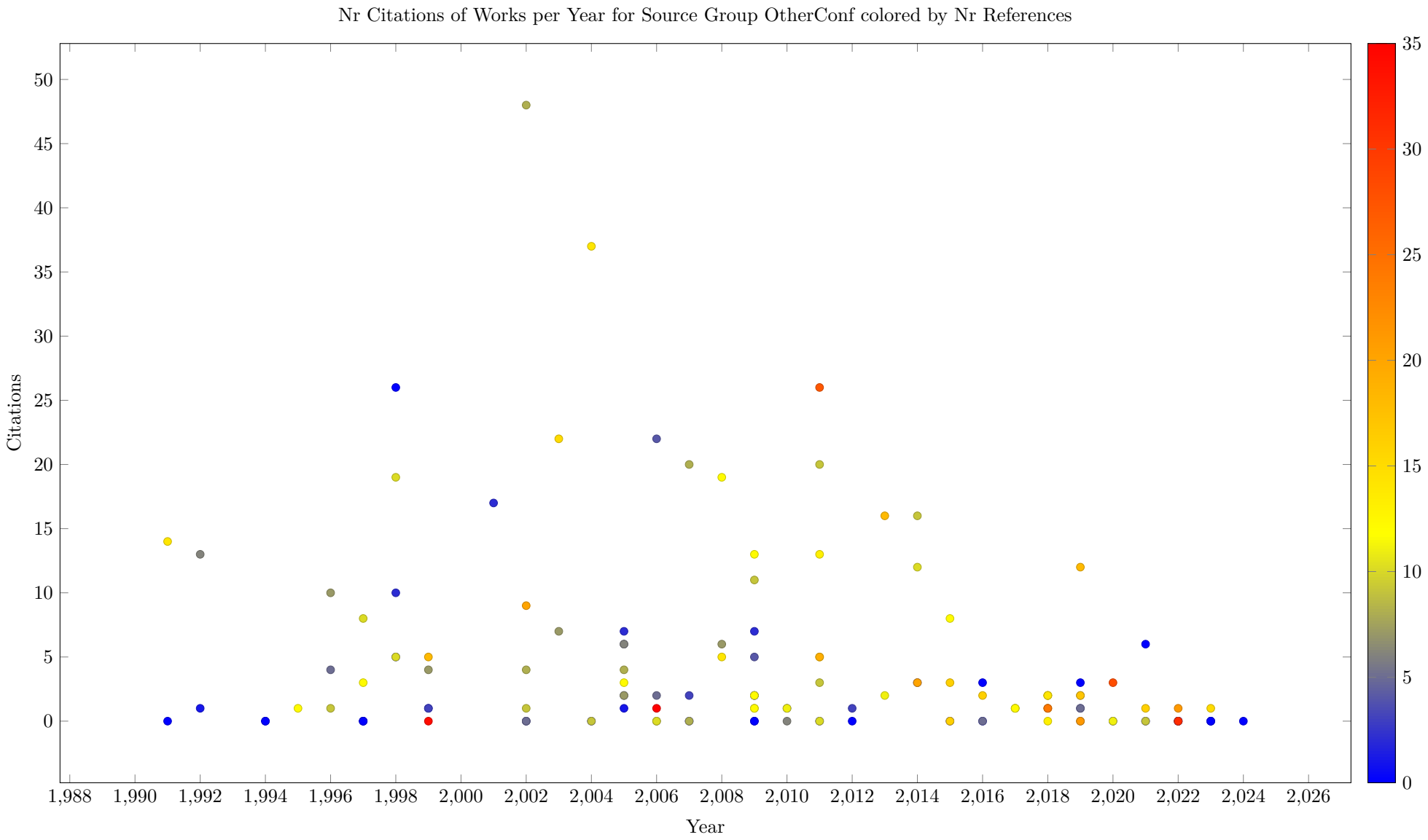
2,016
2,018
2,020
2,022
2,024
2,026
Year


Nr Citations of Works per Year for Source Group OtherConf colored by Nr References
Citations
Year
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5
10
15
20
25
30
35
40
45
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1,990
1,992
1,994
1,996
1,998
2,000
2,002
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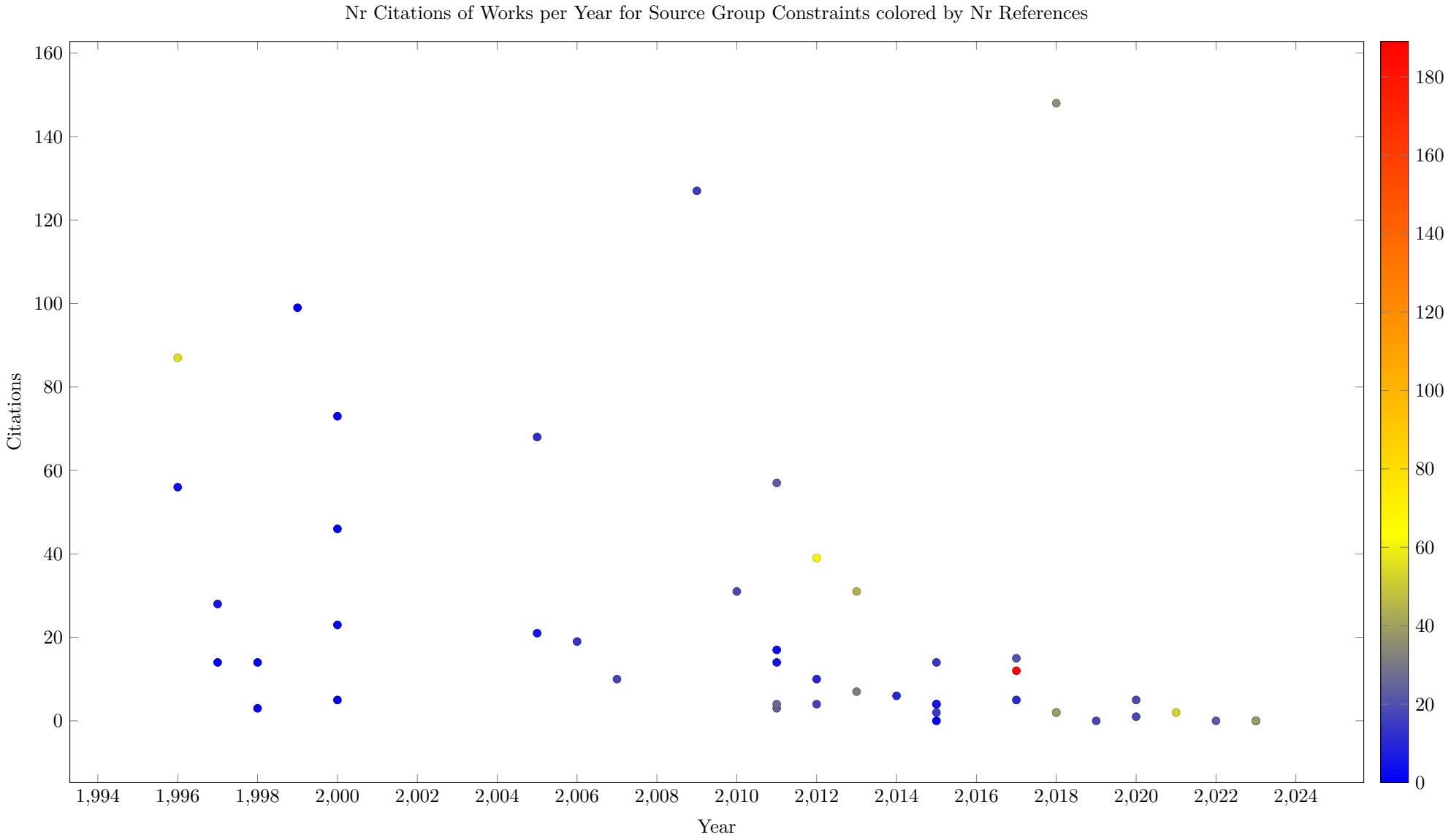
2,016
2,018
2,020
2,022
2,024
2,026


Nr Citations of Works per Year for Source Group Constraints colored by Nr References
Citations
Year
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20
40
60
80
100
120
140
160
180
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1,998
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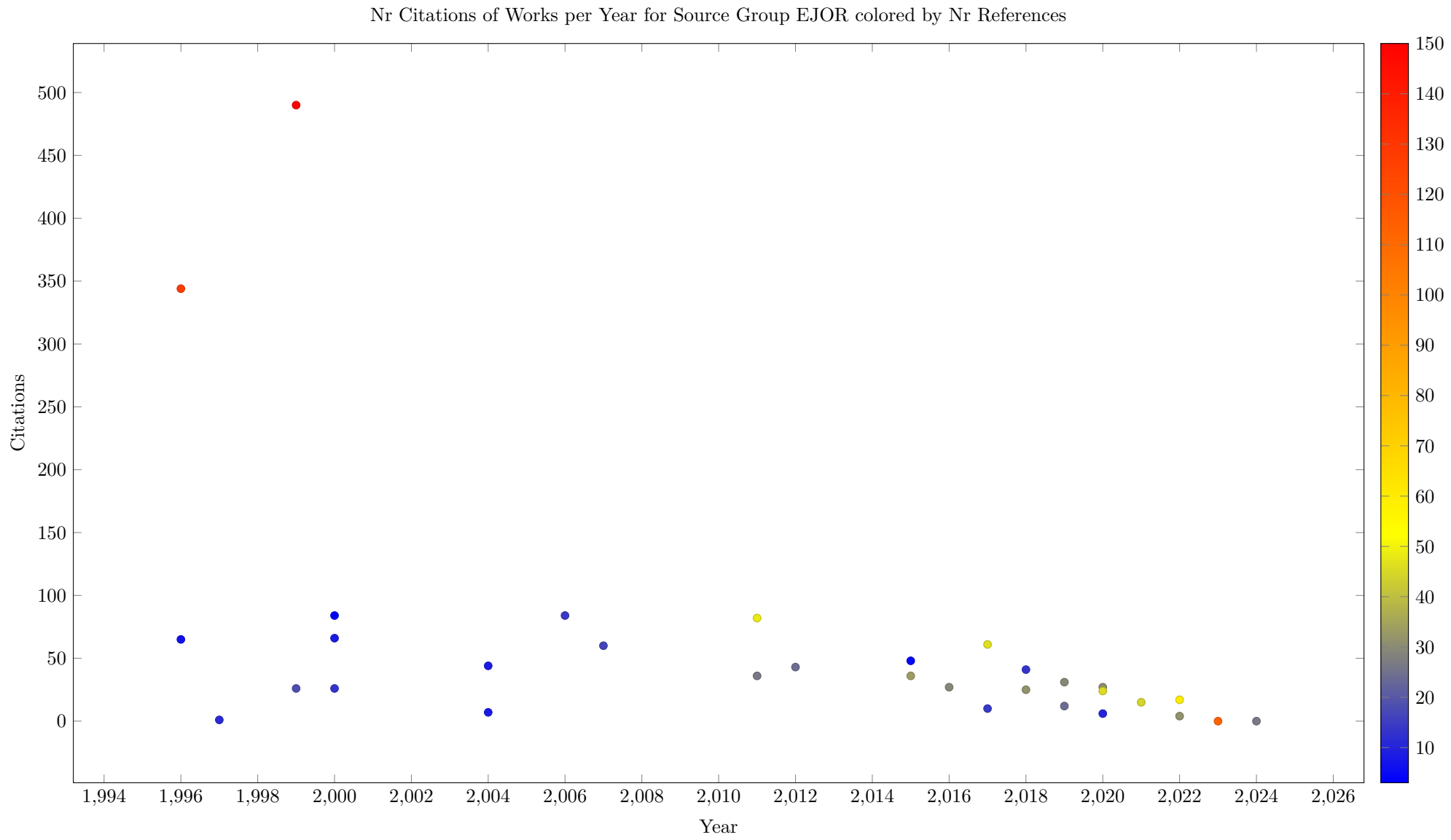
2,014
2,016
2,018
2,020
2,022
2,024


Nr Citations of Works per Year for Source Group EJOR colored by Nr References
Citations
0
50
100
150
200
250
300
350
400
450
500
Year
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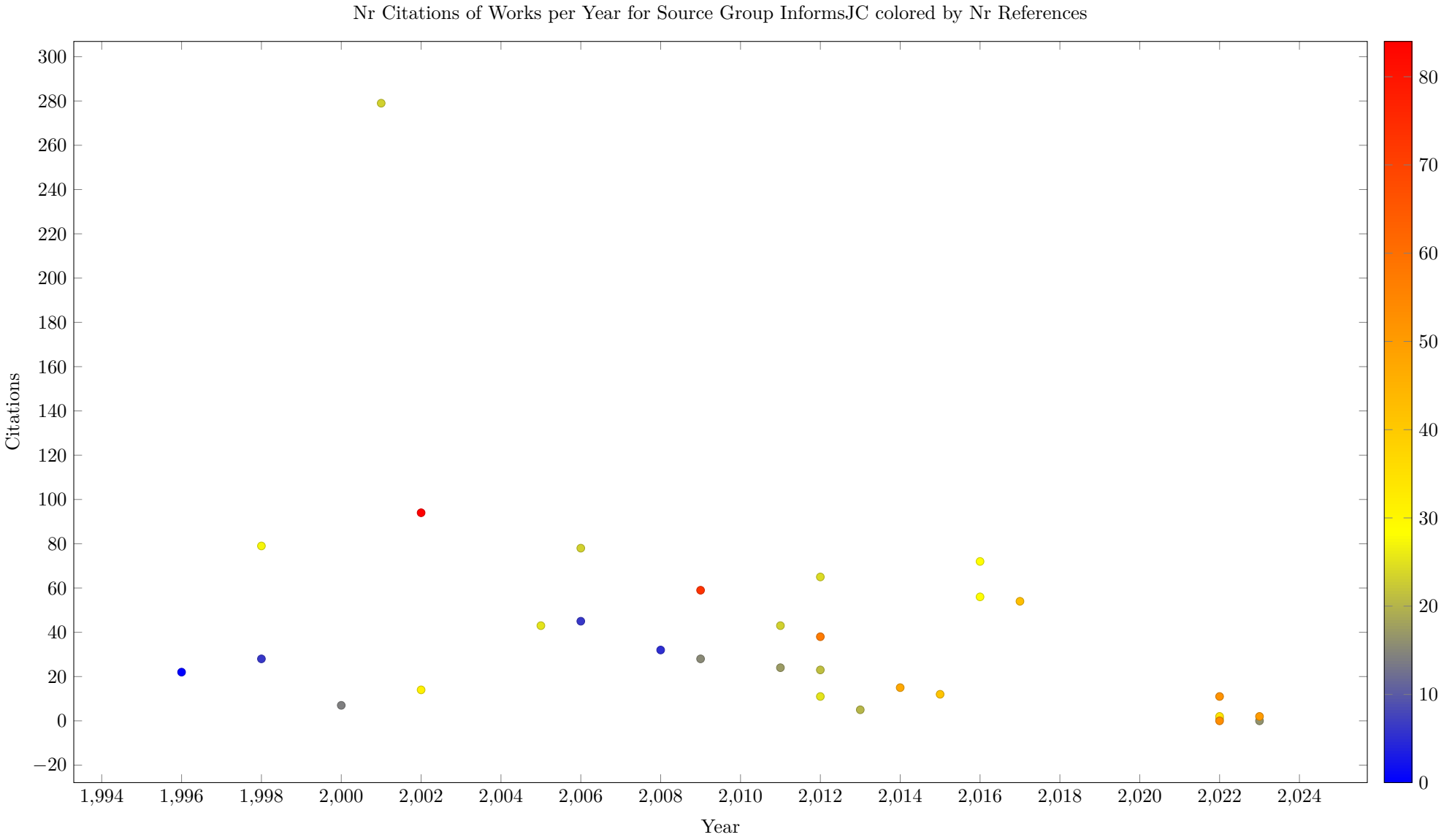
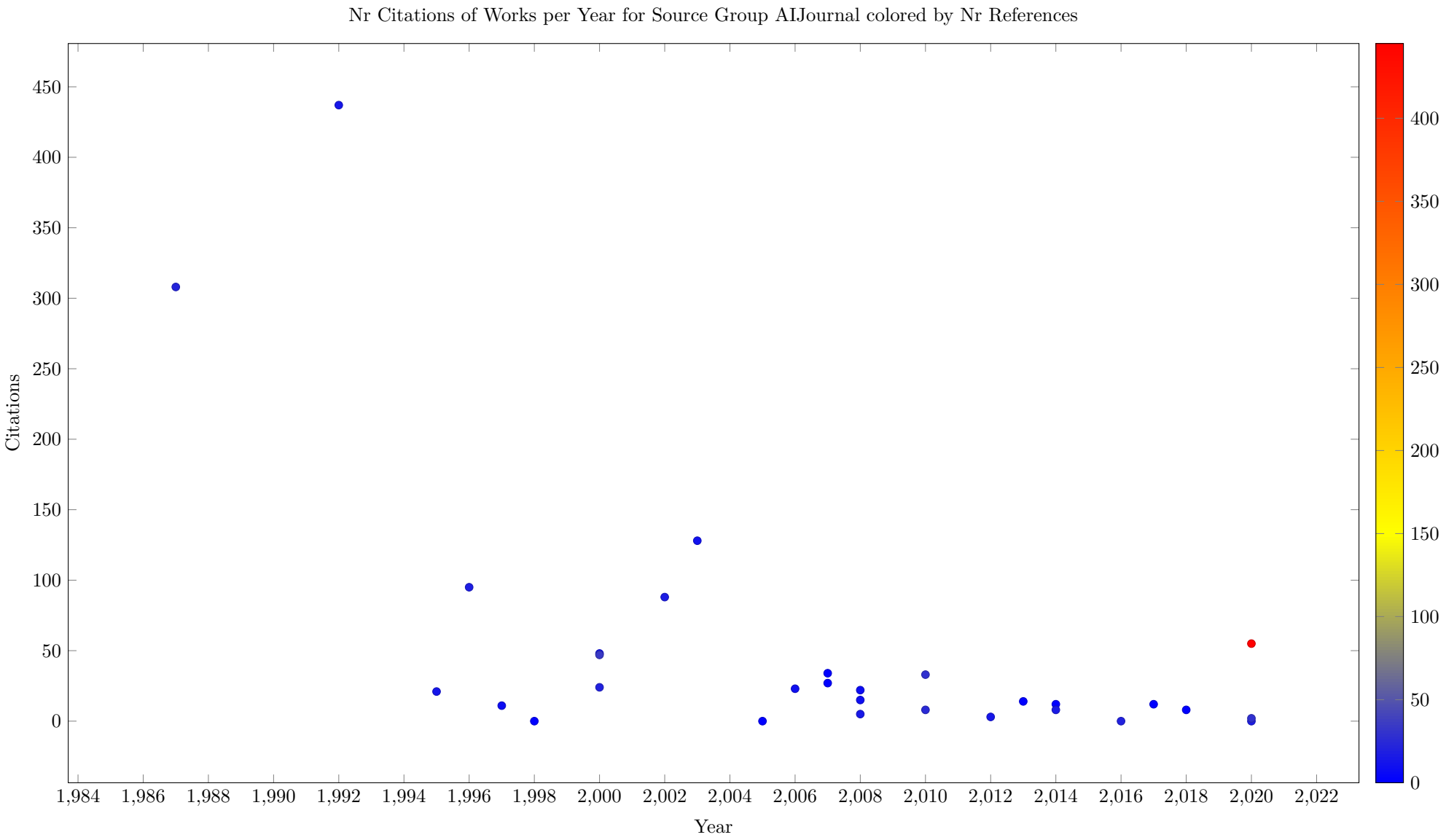
1,996
1,998
2,000
2,002
2,004
2,006
2,008
2,010
2,012
2,014
2,016
2,018
2,020
2,022
2,024
2,026
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150


Nr Citations of Works per Year for Source Group InformsJC colored by Nr References
Citations
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
−20
1,994
1,996
1,998
2,000
2,002
2,004
2,006
2,008
2,010
2,012
2,014
2,016
2,018
2,020
2,022
2,024
Year
80
70
60
50
40
30
20
10
0


Nr Citations of Works per Year for Source Group AIJournal colored by Nr References
Citations
0
50
100
150
200
250
300
350
400
450
Year
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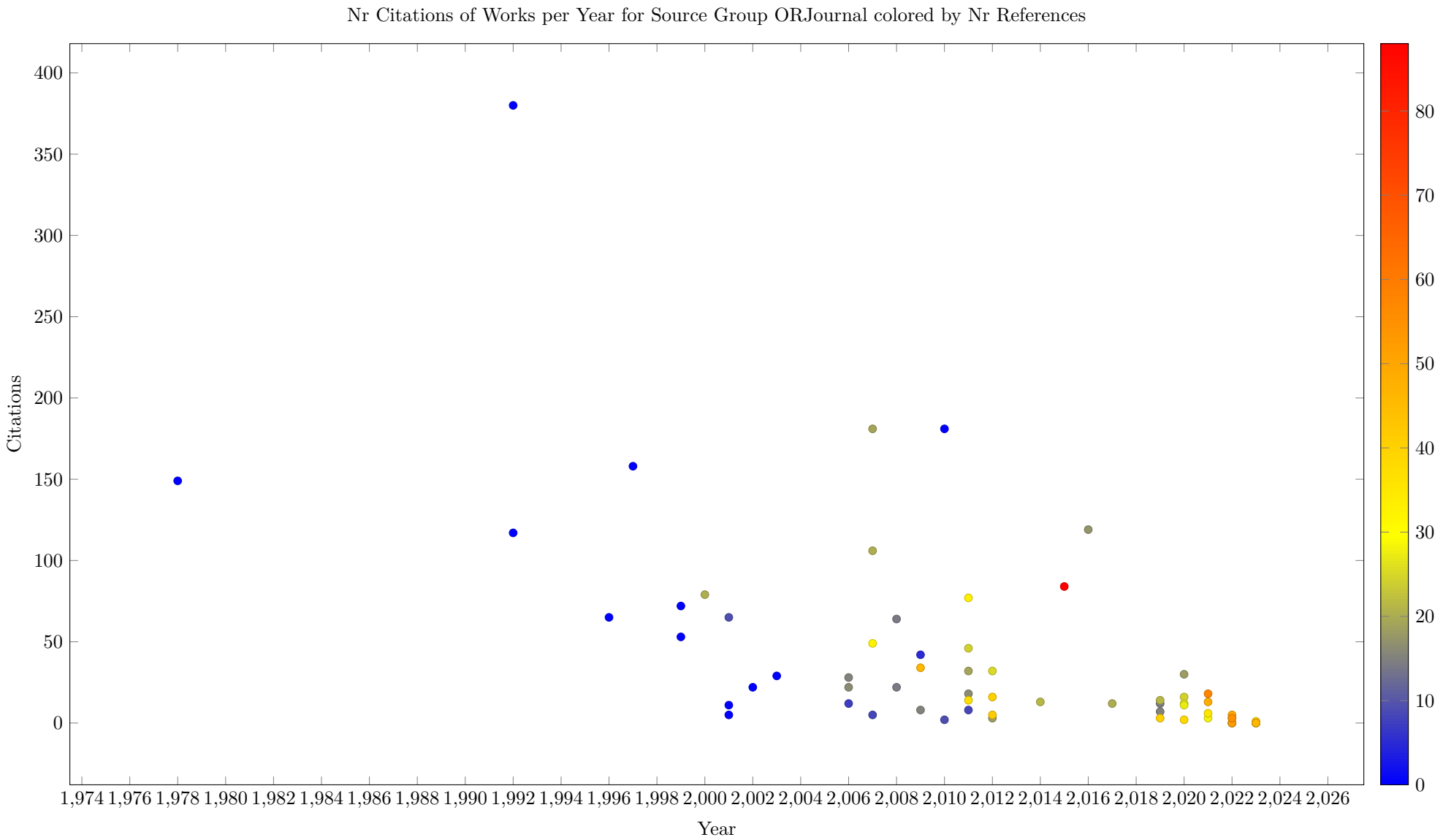
1,986
1,988
1,990
1,992
1,994
1,996
1,998
2,000
2,002
2,004
2,006
2,008
2,010
2,012
2,014
2,016
2,018
2,020
2,022
0
50
100
150
200
250
300
350
400


Nr Citations of Works per Year for Source Group ORJournal colored by Nr References
Citations
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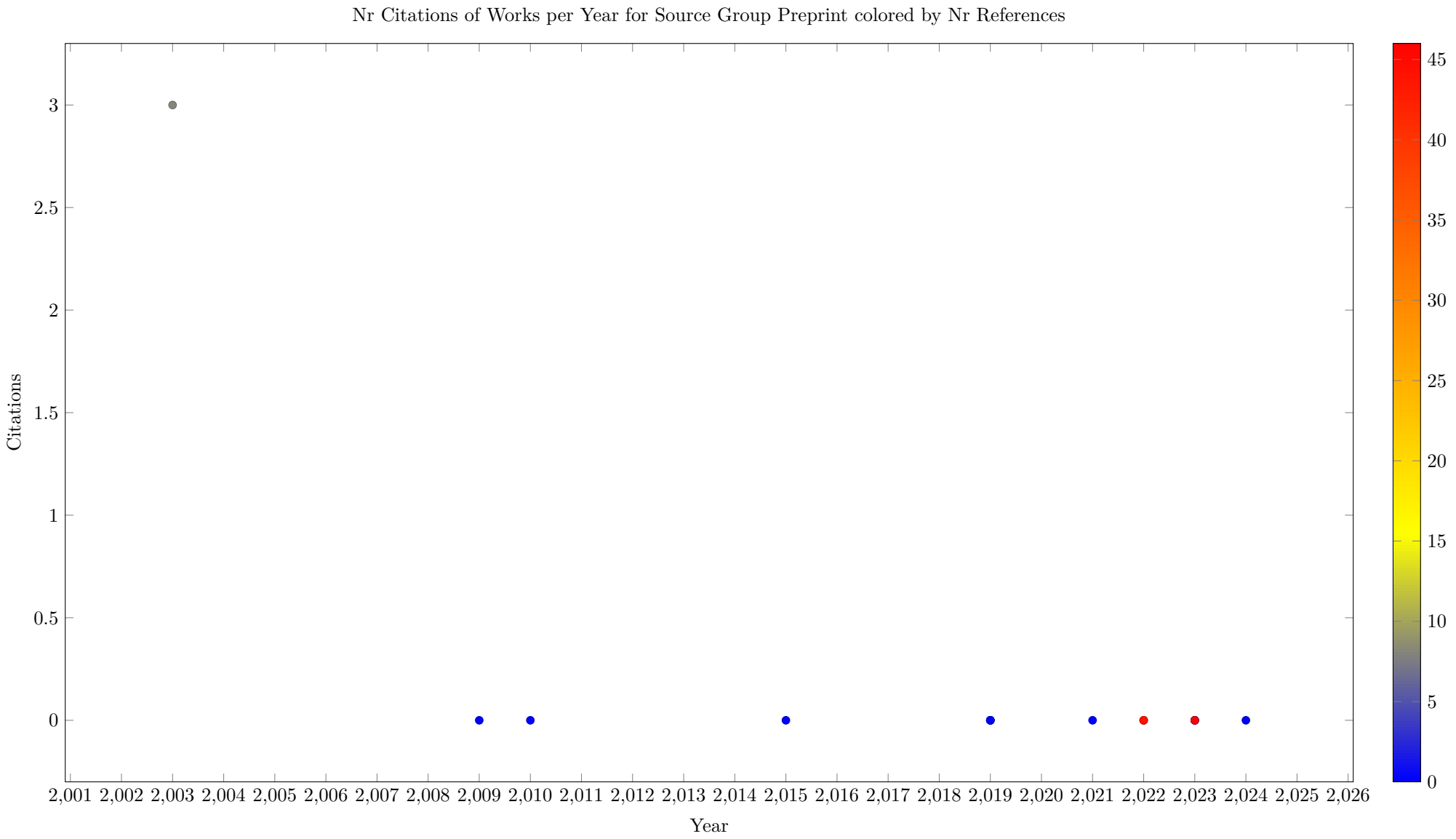
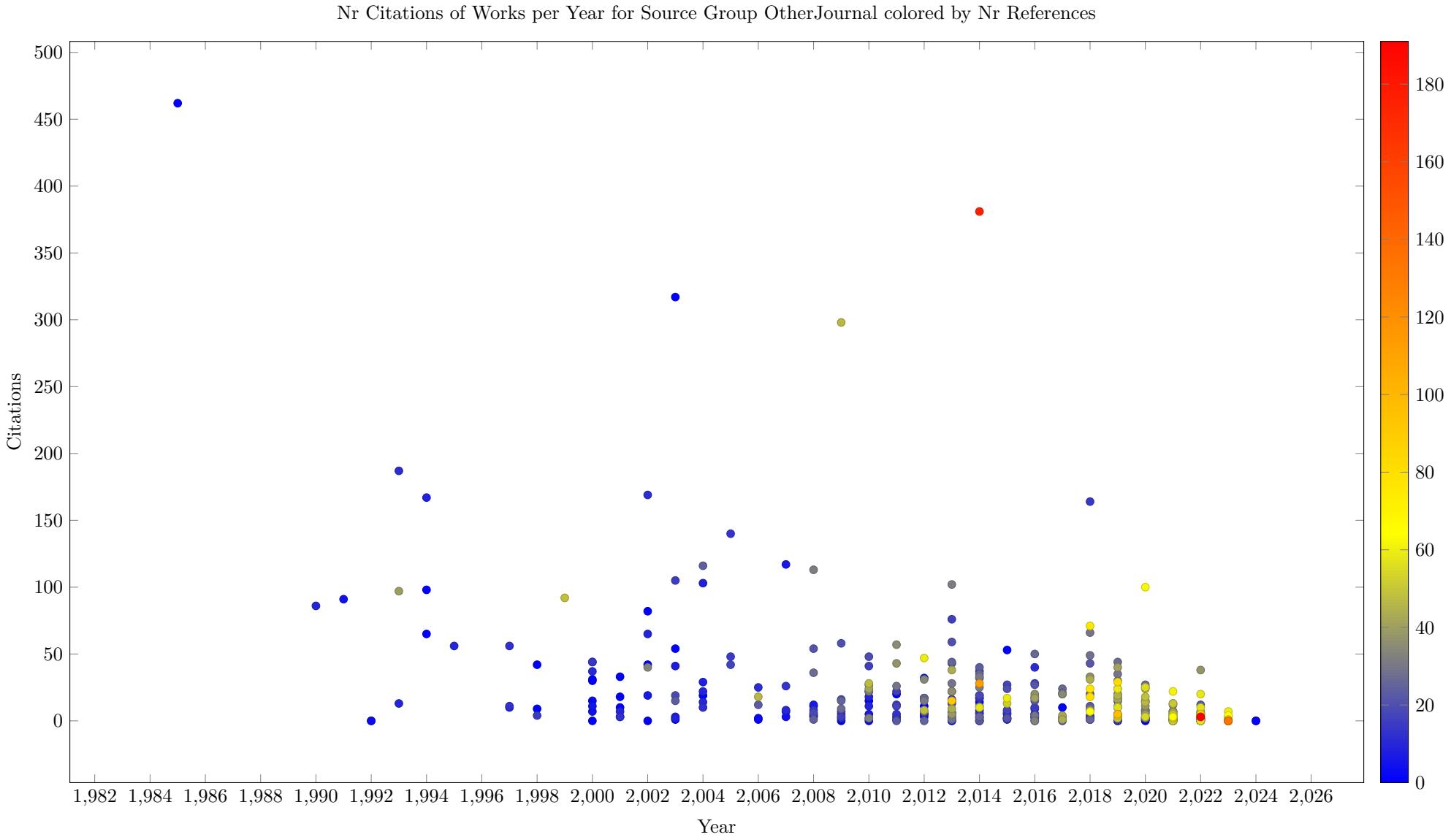
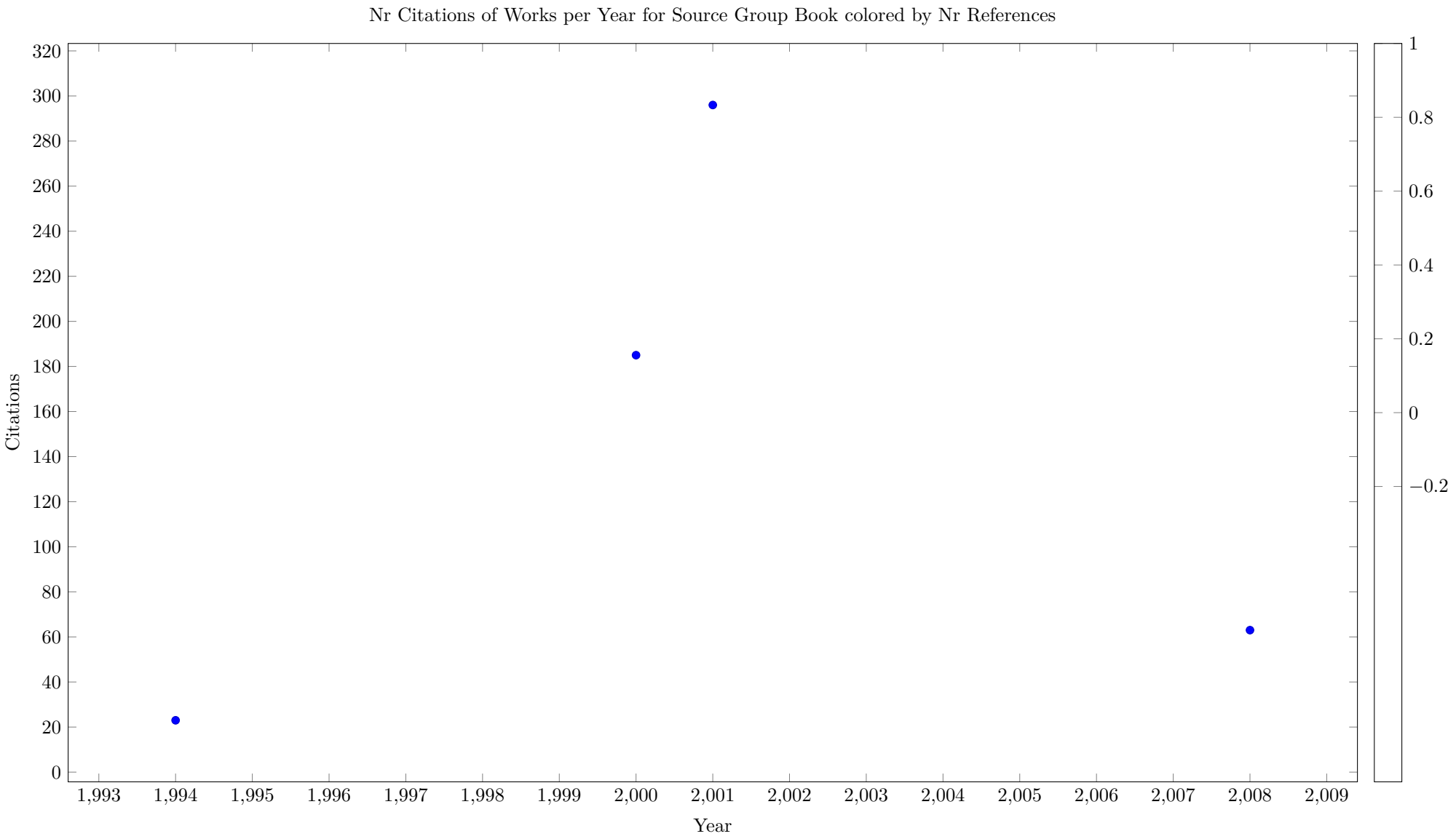
100
150
200
250
300
350
400
Year
1,974 1,976 1,978 1,980 1,982 1,984 1,986 1,988 1,990 1,992 1,994 1,996 1,998 2,000 2,002 2,004 2,006 2,008 2,010 2,012 2,014 2,016 2,018 2,020 2,022 2,024 2,026
0
10
20
30
40
50
60
70
80


Nr Citations of Works per Year for Source Group Preprint colored by Nr References
Citations
0
0.5
1
1.5
2
2.5
3
Year
2,001 2,002 2,003 2,004 2,005 2,006 2,007 2,008 2,009 2,010 2,011 2,012 2,013 2,014 2,015 2,016 2,017 2,018 2,019 2,020 2,021 2,022 2,023 2,024 2,025 2,026
0
5
10
15
20
25
30
35
40
45


Nr Citations of Works per Year for Source Group OtherJournal colored by Nr References
Citations
500
450
400
350
300
250
200
150
100
50
0
1,982
1,984
1,986
1,988
1,990
1,992
1,994
1,996
1,998
2,000
2,002
2,004
2,006
2,008
2,010
2,012
2,014
2,016
2,018
2,020
2,022
2,024
2,026
Year
180
160
140
120
100
80
60
40
20
0


Nr Citations of Works per Year for Source Group Book colored by Nr References
Citations
Year
0
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
320
1,993
1,994
1,995
1,996
1,997
1,998
1,999
2,000
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2,002
2,003
2,004
2,005
2,006
2,007
2,008
2,009
1
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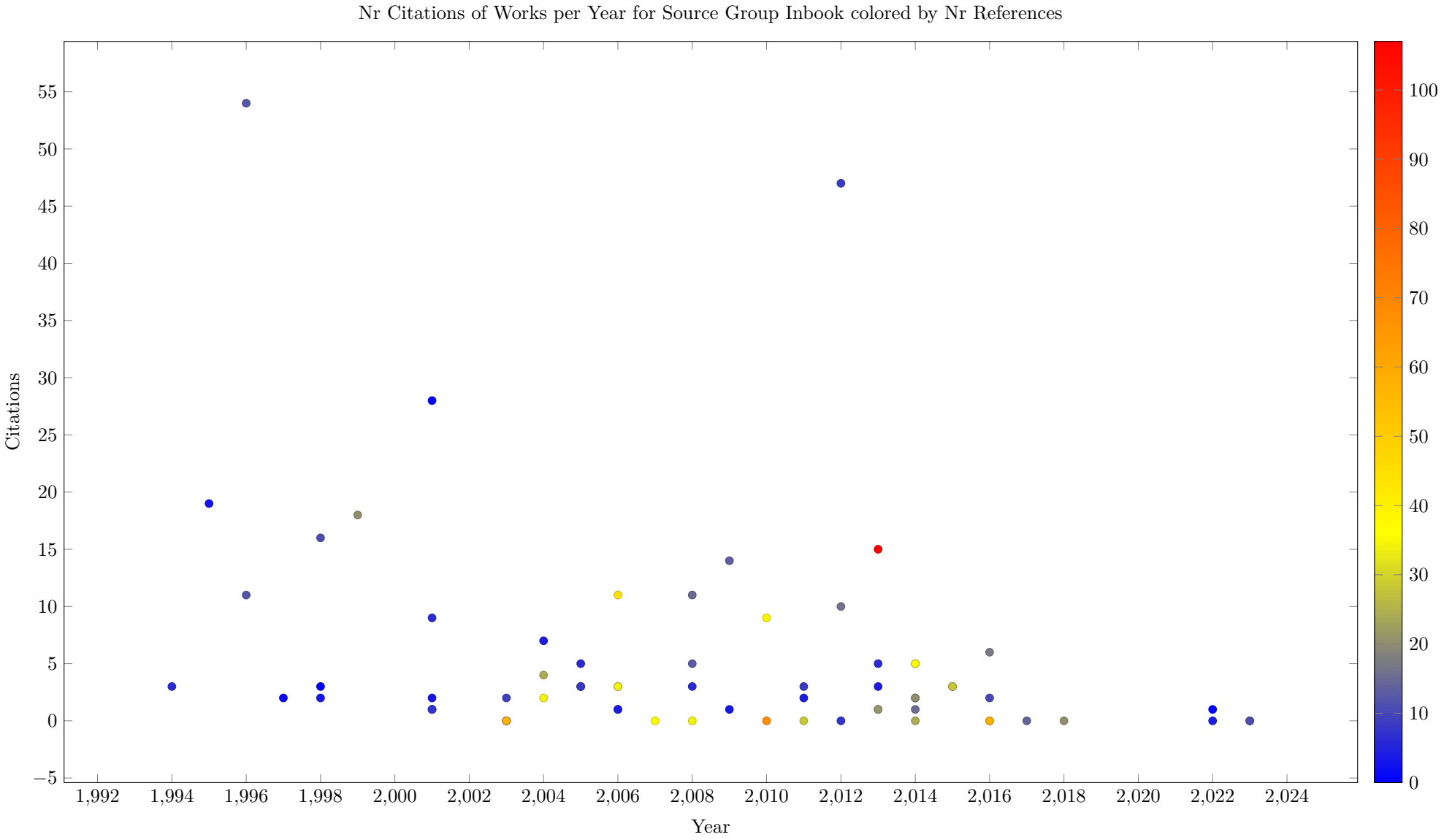
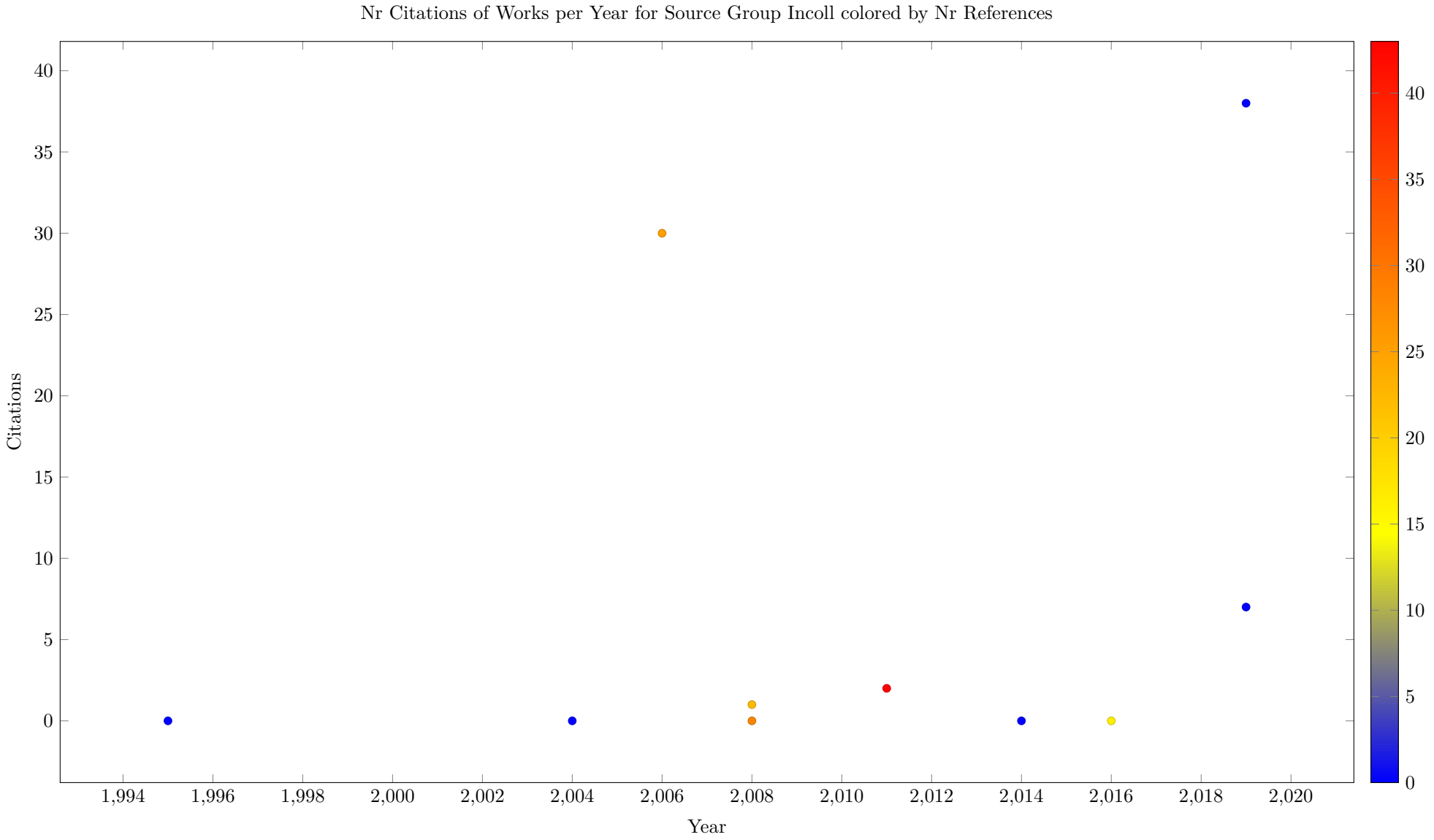
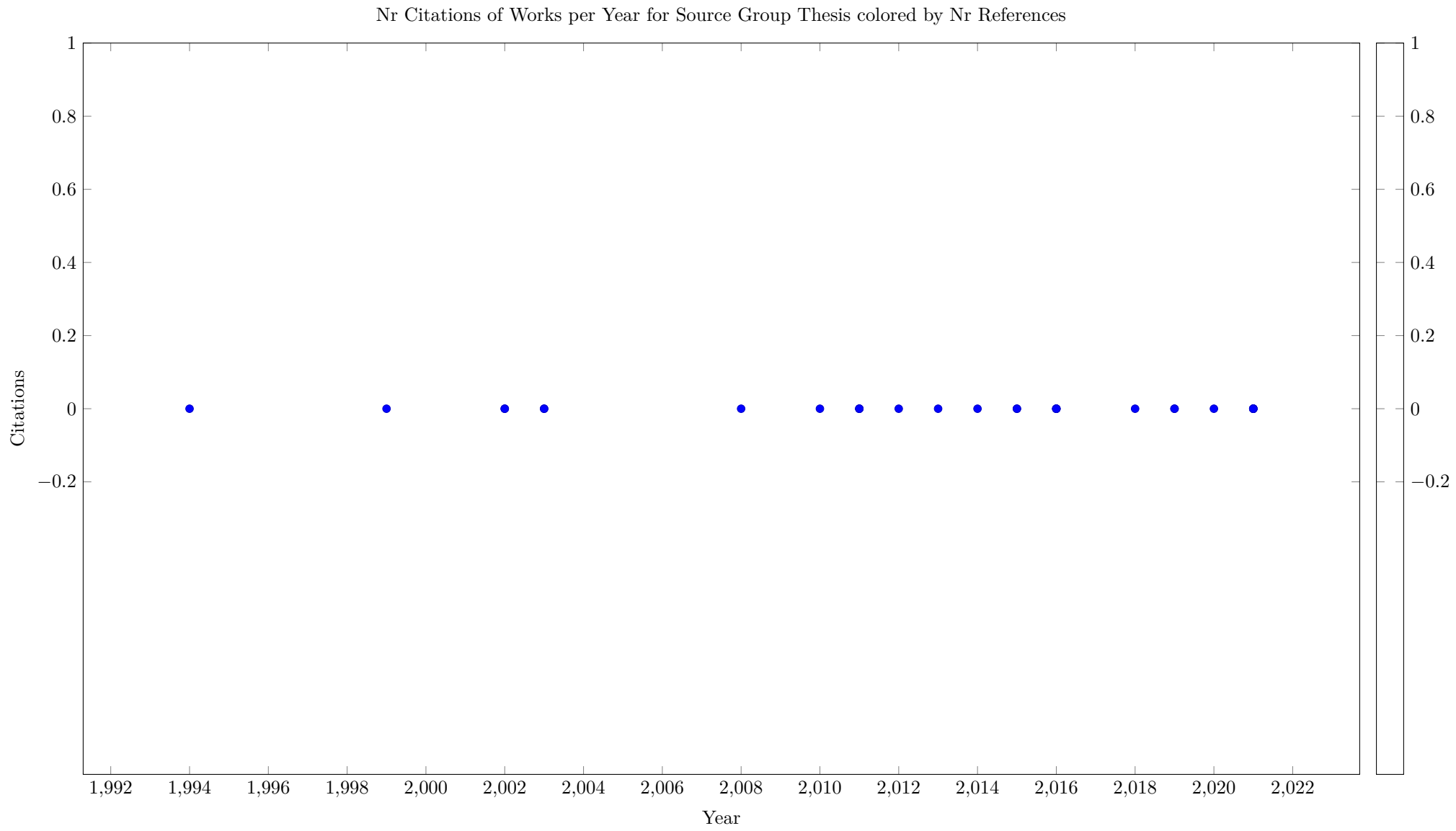
0.6
0.4
0.2
0
−0.2


Nr Citations of Works per Year for Source Group Inbook colored by Nr References
Citations
Year
55
50
45
40
35
30
25
20
15
10
5
0
−5
1,992
1,994
1,996
1,998
2,000
2,002
2,004
2,006
2,008
2,010
2,012
2,014
2,016
2,018
2,020
2,022
2,024
100
90
80
70
60
50
40
30
20
10
0


Nr Citations of Works per Year for Source Group Incoll colored by Nr References
Citations
Year
0
5
10
15
20
25
30
35
40
1,994
1,996
1,998
2,000
2,002
2,004
2,006
2,008
2,010
2,012
2,014
2,016
2,018
2,020


Nr Citations of Works per Year for Source Group Thesis colored by Nr References
Citations
1
0.8
0.6
0.4
0.2
0
−0.2
1,992
1,994
1,996
1,998
2,000
2,002
2,004
2,006
2,008
2,010
2,012
2,014
2,016
2,018
2,020
2,022
Year

15.2 Reference Flows

The following table looks at references between source groups that are contained in the survey, i.e. where bot the citing and the cited work is included in the survey. We show how many papers referred to in the group on the left belong to the group in the column.

Table 12: Reference Flows

	Background	CP	CPAIOR	ICAPS	AAAI	IJCAI	OtherConf	Constraints	EJOR	InformsJC	AIJournal	ORJournal	Preprint	OtherJournal	Book	Inbook	Incoll
Background	68	14	3				2	12	8	21	2	25		31	6	5	
CP	115	125	70	2	1	1	14	39	6	28	22	19		71	27	7	4
CPAIOR	96	108	66	1	1	1	19	47	15	26	10	29	1	78	27	10	2
ICAPS	4	3															
OtherConf	65	38	19				12	23	8	16	13	17		72	10	12	1
Constraints	63	57	43	1			10	24	5	15	10	16		62	18	4	1
EJOR	62	2	1				1	10	21	19	6	18		44		3	1
InformsJC	70	21	12				1	19	20	28	7	20		40	16	2	1
AIJournal	33	9	4	1			8	5	9	5	17	4		41	1	3	
ORJournal	101	39	18				1	32	25	34	17	30		89	8	6	1
Preprint	6							3	11	5		4		8	2		
OtherJournal	315	72	53				30	111	100	98	70	133		569	39	24	6
Inbook	108	16	19				5	18	15	24	13	32		65	13	14	
Incoll	13	2					2	3	5	1	5	6		6	2	1	

The entries in the previous table are not directly comparable, without knowing how many works are in group. The next table presents a normalized view, where we divide the flow count by the product of the group sizes. This produces a likelihood of a paper in the source group citing a paper in the target group, given as a percentage from 0 to 100. We can see that the likelihood does not depend on the prestige of the target, e.g. papers at AAAI are cited much less than papers in CP.

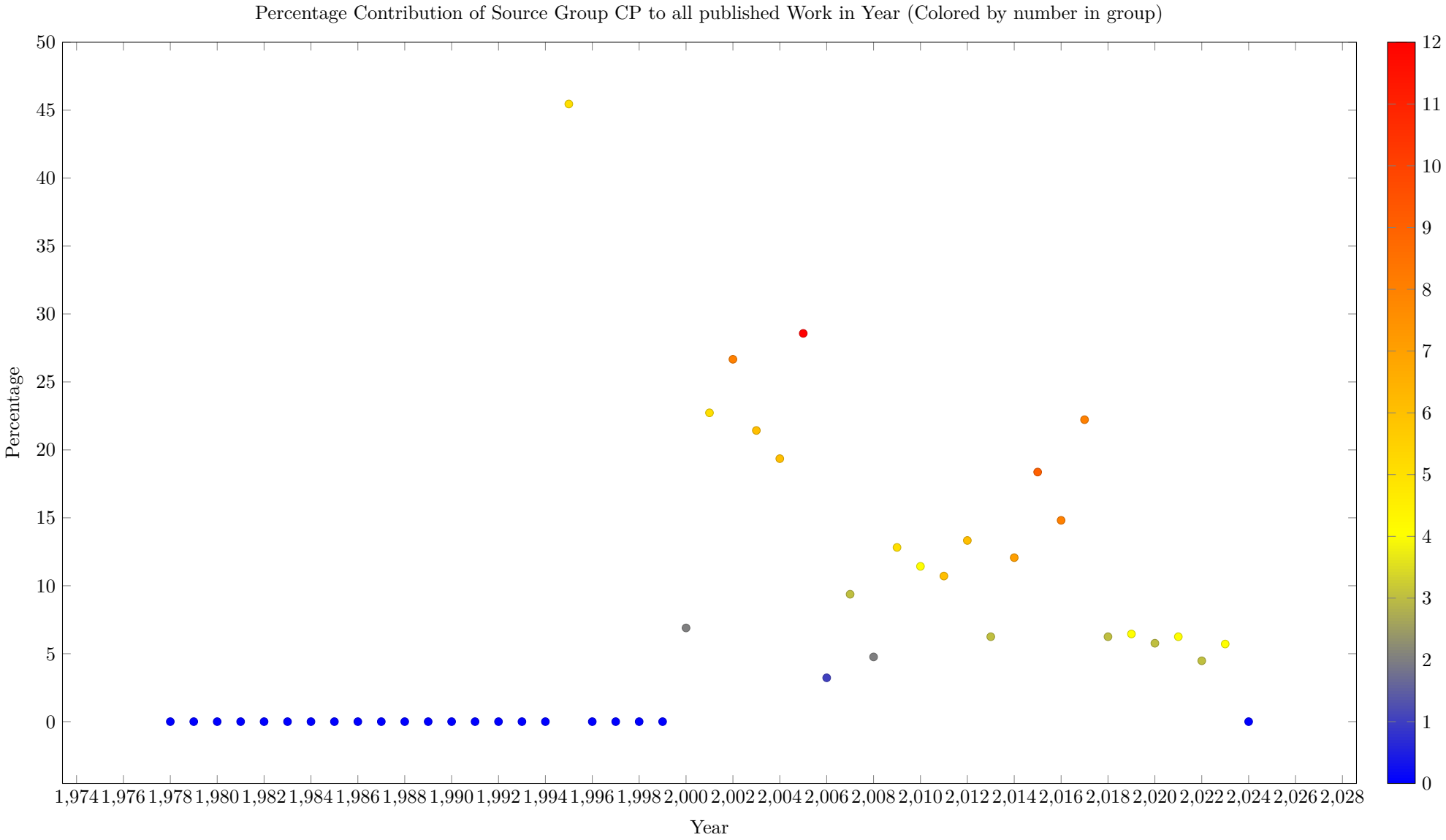
Note that the numbers are derived from the flows contained in the survey, which are based on the OpenCitation reference links. If such links are missing, or we are missing works in some group, then the results will be affected.

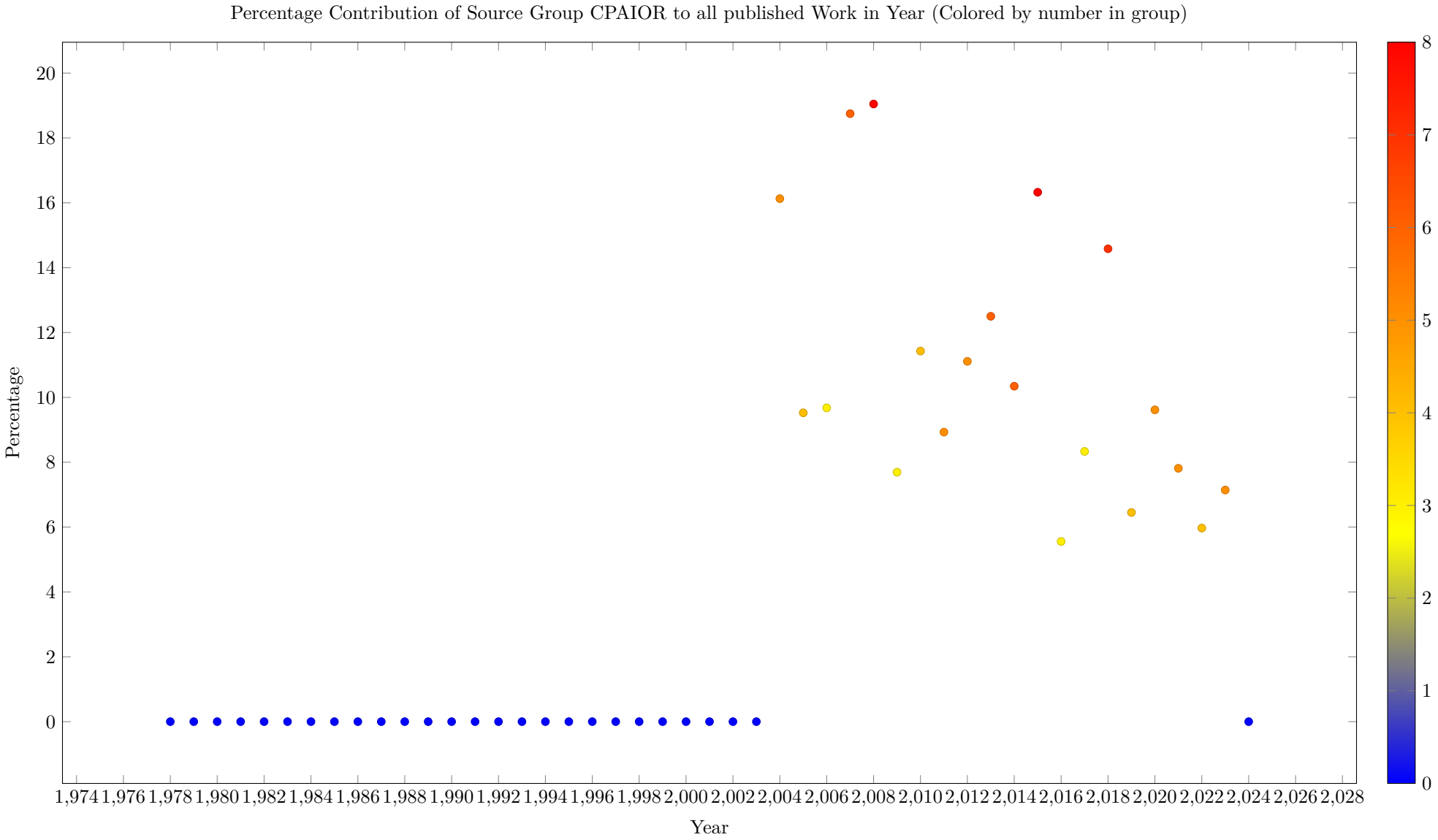
Table 13: Reference Flows Normalized

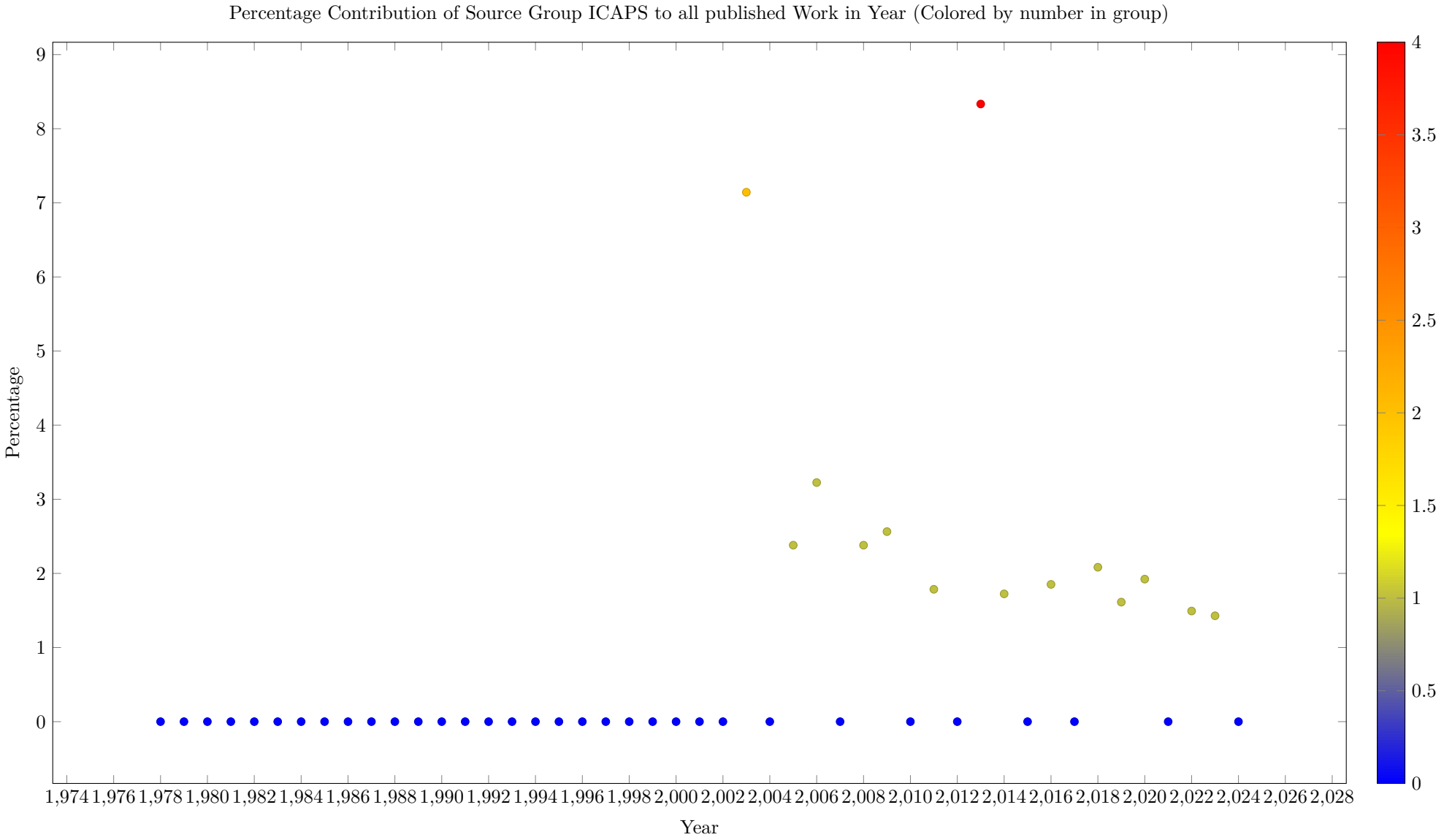
	Background	CP	CPAIOR	ICAPS	AAAI	IJCAI	OtherConf	Constraints	EJOR	InformsJC	AIJournal	ORJournal	Preprint	OtherJournal	Book	Inbook	Incoll
Background	3.68	0.26	0.07				0.03	0.59	0.58	1.58	0.16	0.85		0.18	3.49	0.17	
CP	2.11	0.78	0.56	0.09	0.01	0.03	0.08	0.65	0.15	0.71	0.58	0.22		0.14	5.31	0.08	0.31
CPAIOR	2.26	0.86	0.67	0.06	0.02	0.03	0.14	1.01	0.47	0.85	0.34	0.43	0.06	0.20	6.82	0.15	0.20
ICAPS	0.52	0.13															
OtherConf	1.13	0.22	0.14				0.07	0.37	0.19	0.39	0.32	0.19		0.14	1.87	0.13	0.07
Constraints	3.12	0.95	0.92	0.12			0.16	1.09	0.33	1.03	0.71	0.50		0.33	9.57	0.13	0.21
EJOR	4.51	0.05	0.03				0.02	0.66	2.05	1.92	0.63	0.83		0.35		0.14	0.31
InformsJC	5.25	0.53	0.39				0.02	1.30	2.02	2.91	0.75	0.95		0.33	12.90	0.10	0.32
AIJournal	2.56	0.24	0.13	0.19			0.20	0.35	0.94	0.54	1.89	0.20		0.35	0.83	0.15	
ORJournal	3.45	0.45	0.27				0.01	1.00	1.15	1.61	0.83	0.65		0.33	2.94	0.13	0.15
Preprint	0.82							0.38	2.02	0.95		0.35		0.12	2.94		
OtherJournal	1.86	0.14	0.14				0.06	0.60	0.79	0.80	0.59	0.50		0.37	2.47	0.09	0.15
Inbook	3.75	0.19	0.29				0.06	0.57	0.70	1.16	0.65	0.70		0.25	4.85	0.31	
Incoll	3.02	0.16					0.15	0.64	1.56	0.32	1.67	0.88		0.15	5.00	0.15	

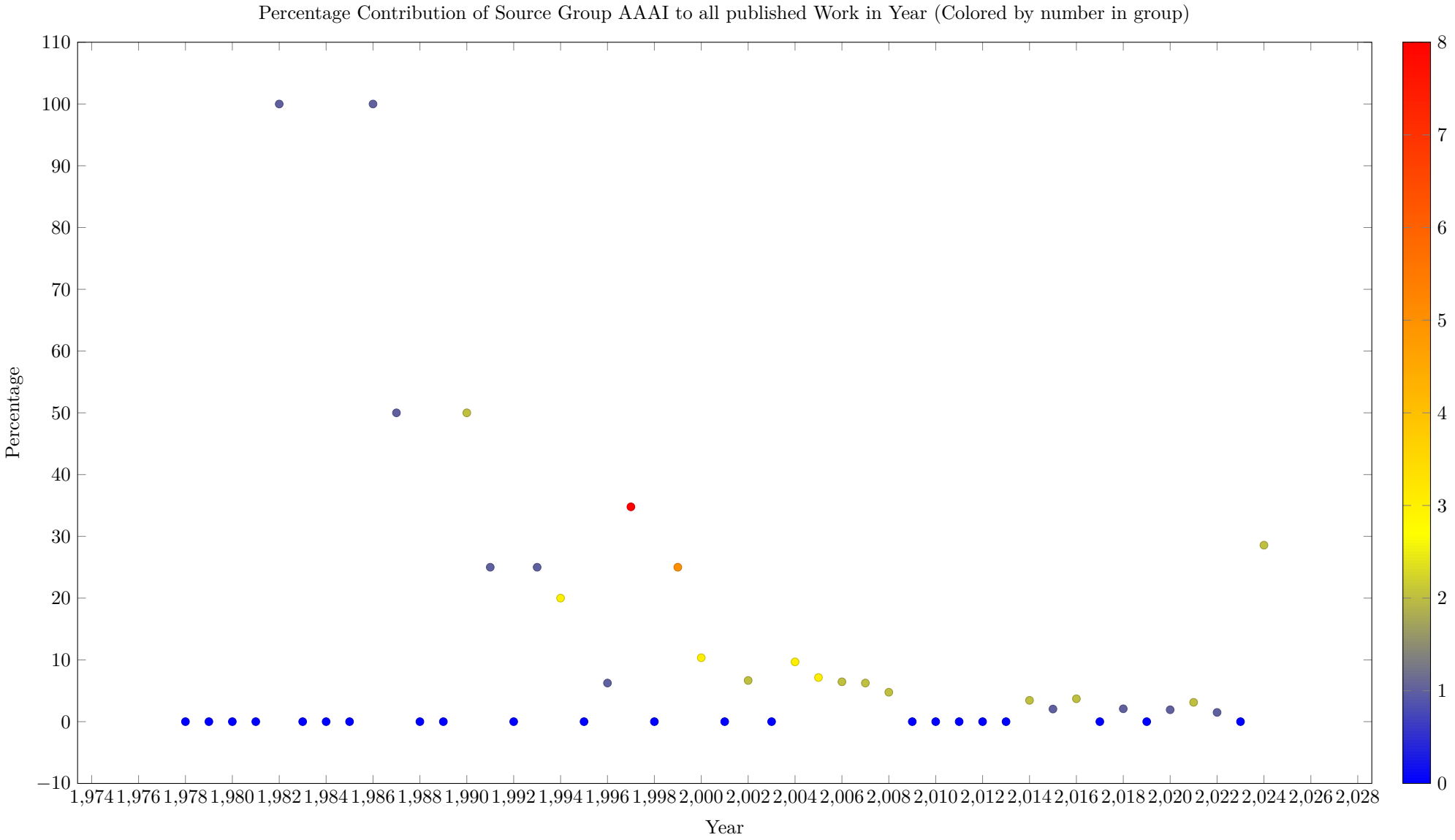
16 Contribution of Source Group to Total Works per Year

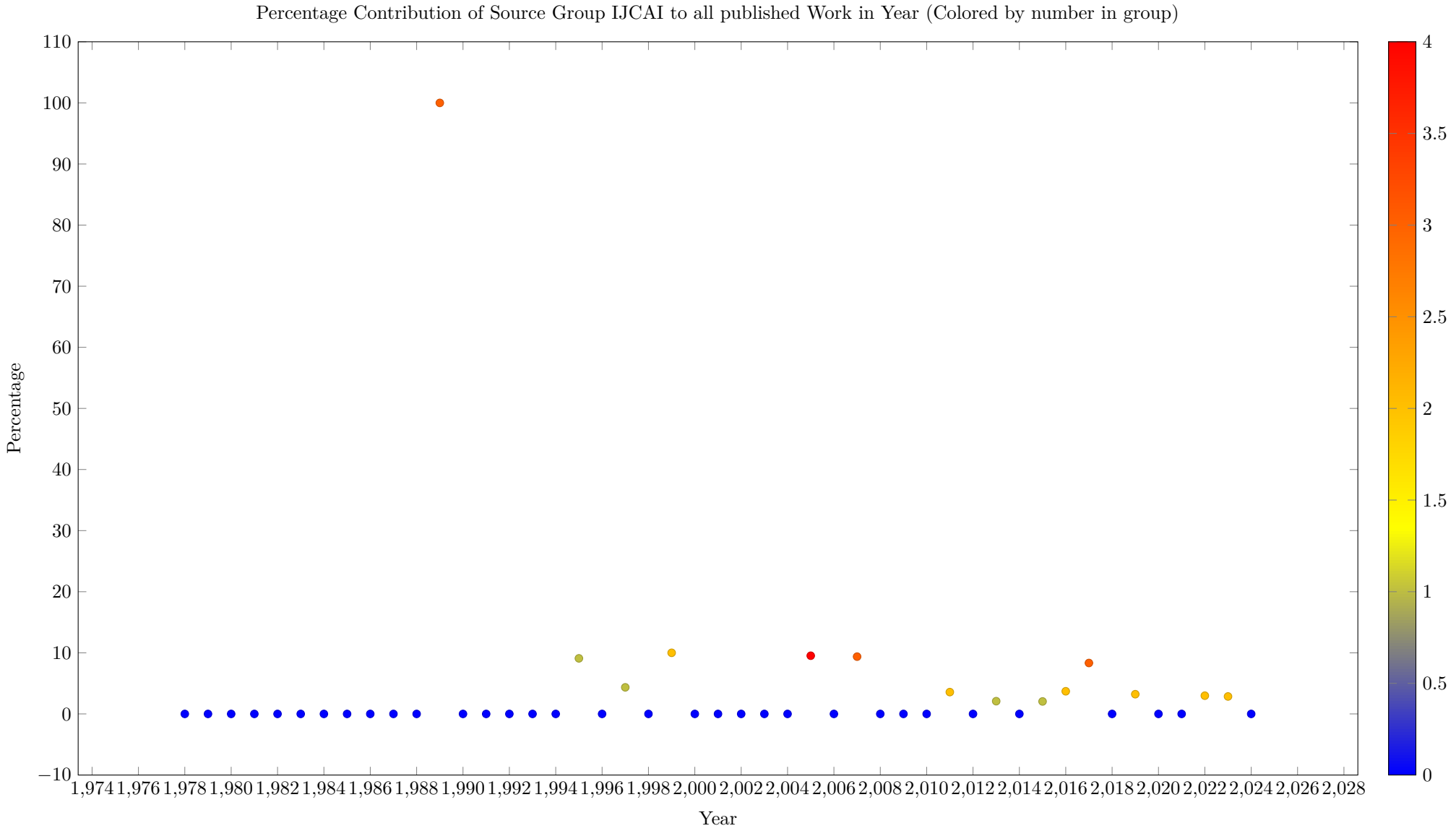
The following plots show the percentage of works published in a year belonging to a specific source group. This plot helps to understand how important that group is to the field over time

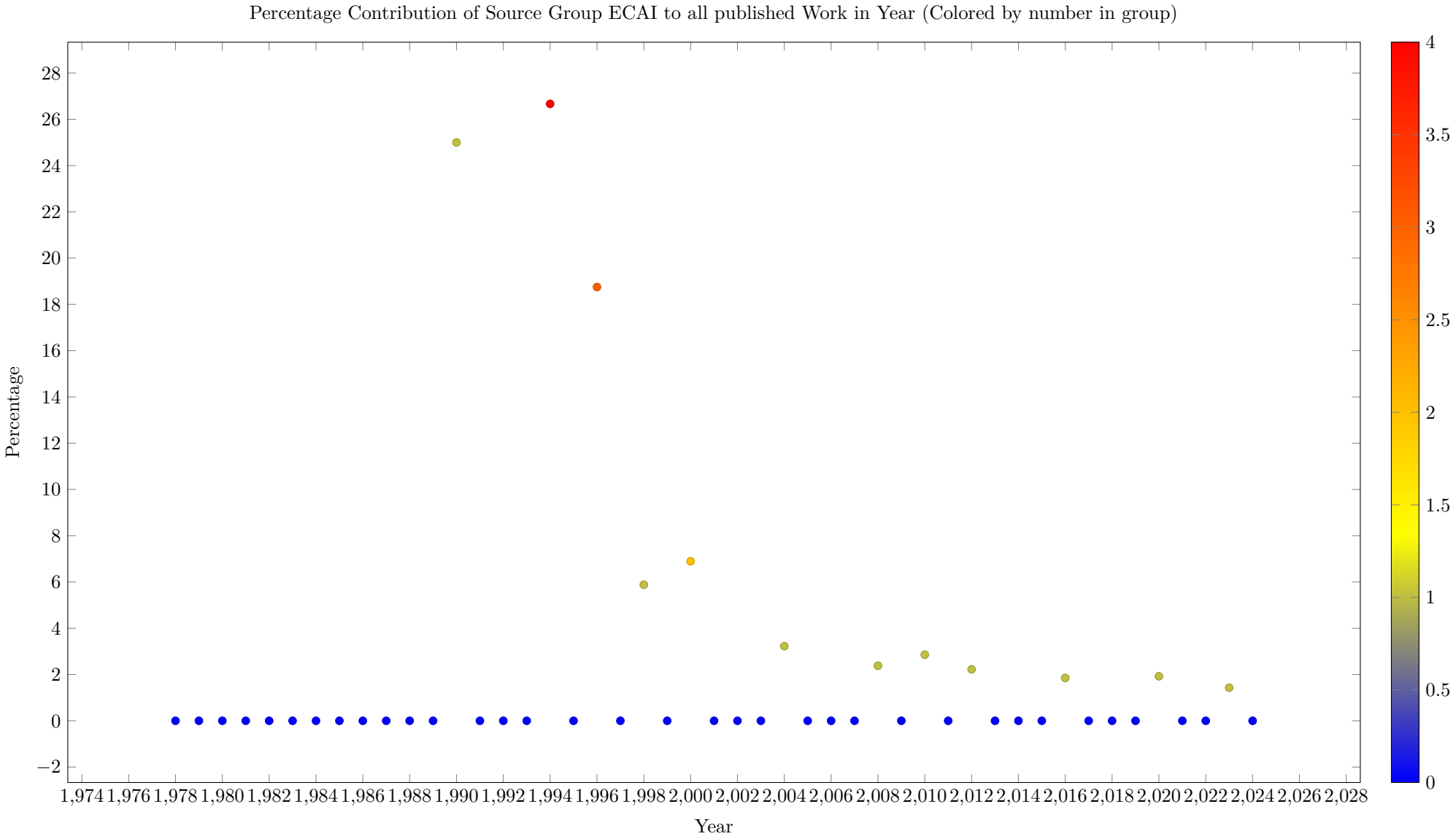

Percentage Contribution of Source Group CP to all published Work in Year (Colored by number in group)
Percentage
50
45
40
35
30
25
20
15
10
5
0
1,974 1,976 1,978 1,980 1,982 1,984 1,986 1,988 1,990 1,992 1,994 1,996 1,998 2,000 2,002 2,004 2,006 2,008 2,010 2,012 2,014 2,016 2,018 2,020 2,022 2,024 2,026 2,028
Year
12
11
10
9
8
7
6
5
4
3
2
1
0

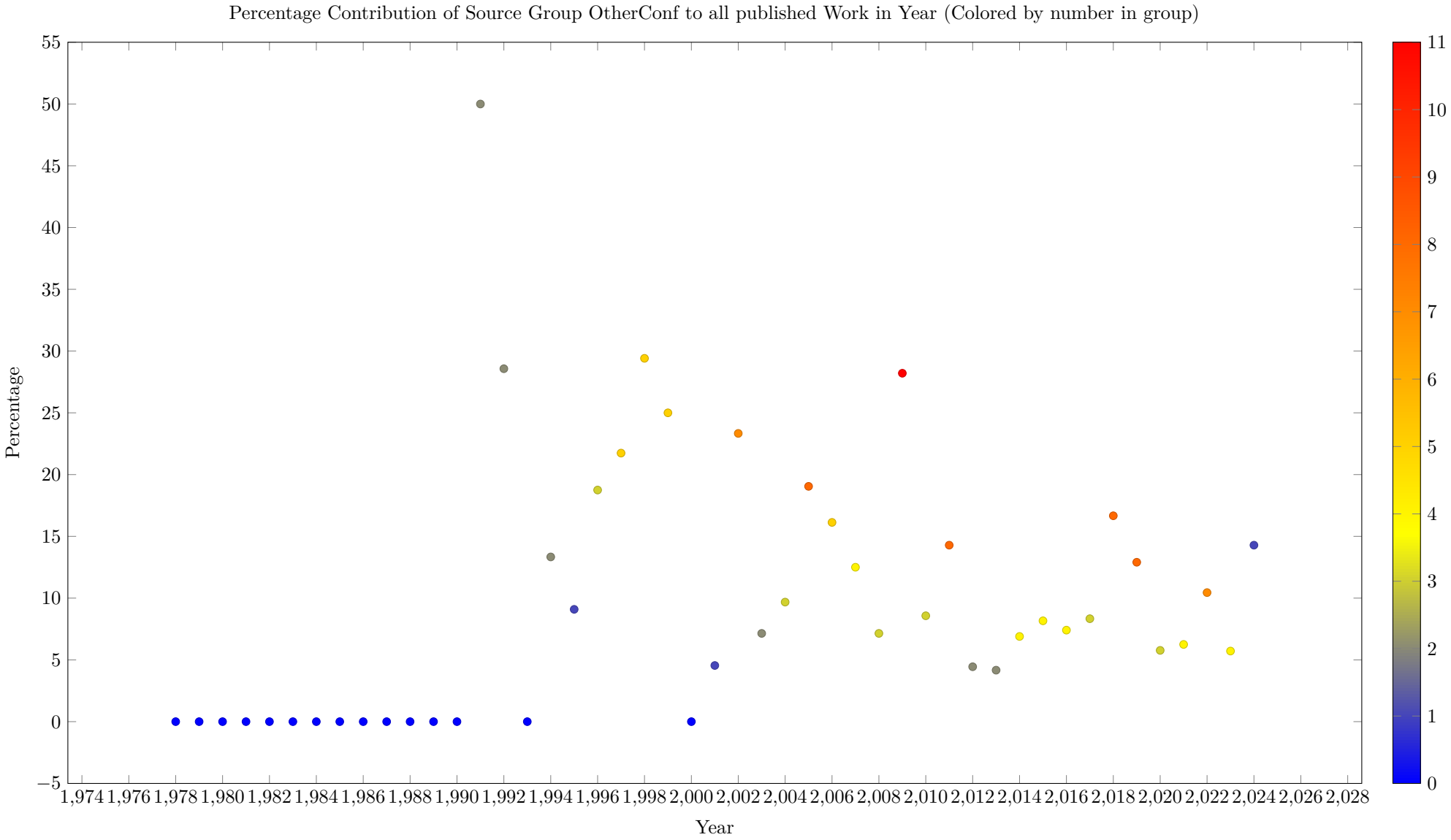

Percentage Contribution of Source Group CPAIOR to all published Work in Year (Colored by number in group)
Percentage
0
2
4
6
8
10
12
14
16
18
20
Year
1,974 1,976 1,978 1,980 1,982 1,984 1,986 1,988 1,990 1,992 1,994 1,996 1,998 2,000 2,002 2,004 2,006 2,008 2,010 2,012 2,014 2,016 2,018 2,020 2,022 2,024 2,026 2,028
0
1
2
3
4
5
6
7
8

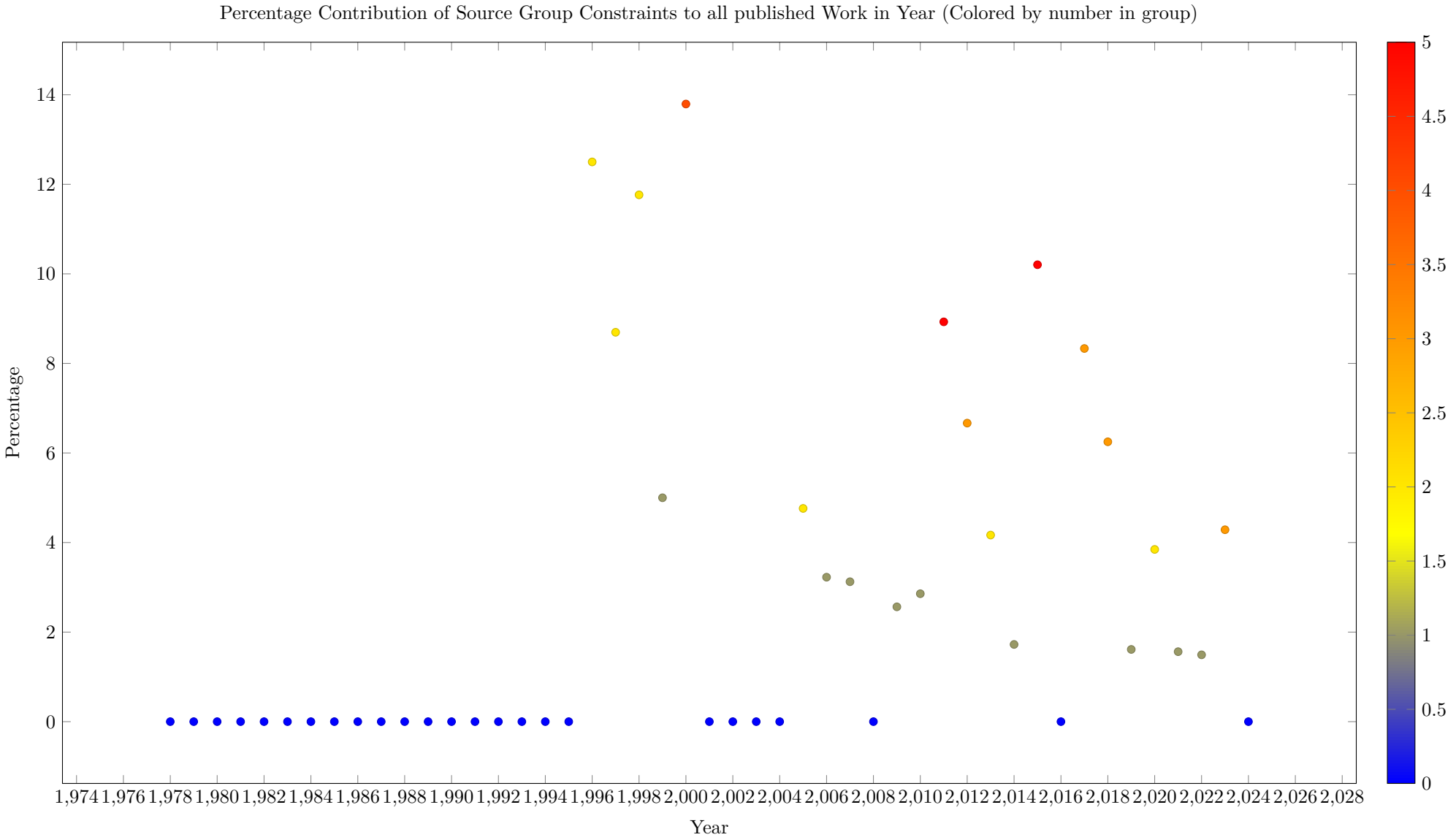

Percentage Contribution of Source Group ICAPS to all published Work in Year (Colored by number in group)
Percentage
Year
0
1
2
3
4
5
6
7
8
9
1,974 1,976 1,978 1,980 1,982 1,984 1,986 1,988 1,990 1,992 1,994 1,996 1,998 2,000 2,002 2,004 2,006 2,008 2,010 2,012 2,014 2,016 2,018 2,020 2,022 2,024 2,026 2,028
0
0.5
1
1.5
2
2.5
3
3.5
4

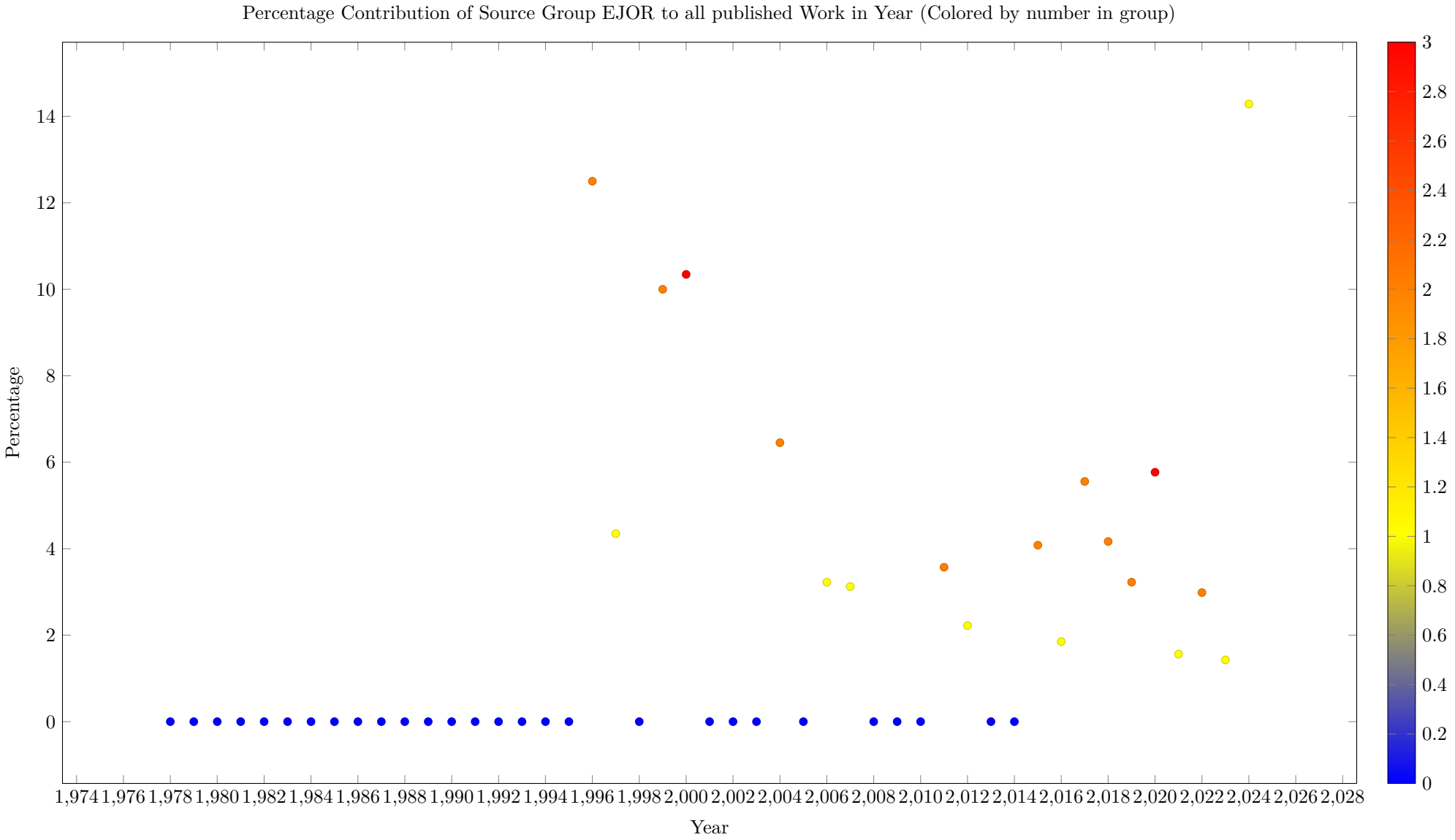

Percentage Contribution of Source Group AAAI to all published Work in Year (Colored by number in group)
Percentage
Year
110
100
90
80
70
60
50
40
30
20
10
0
−10
1,974 1,976 1,978 1,980 1,982 1,984 1,986 1,988 1,990 1,992 1,994 1,996 1,998 2,000 2,002 2,004 2,006 2,008 2,010 2,012 2,014 2,016 2,018 2,020 2,022 2,024 2,026 2,028
8
7
6
5
4
3
2
1
0

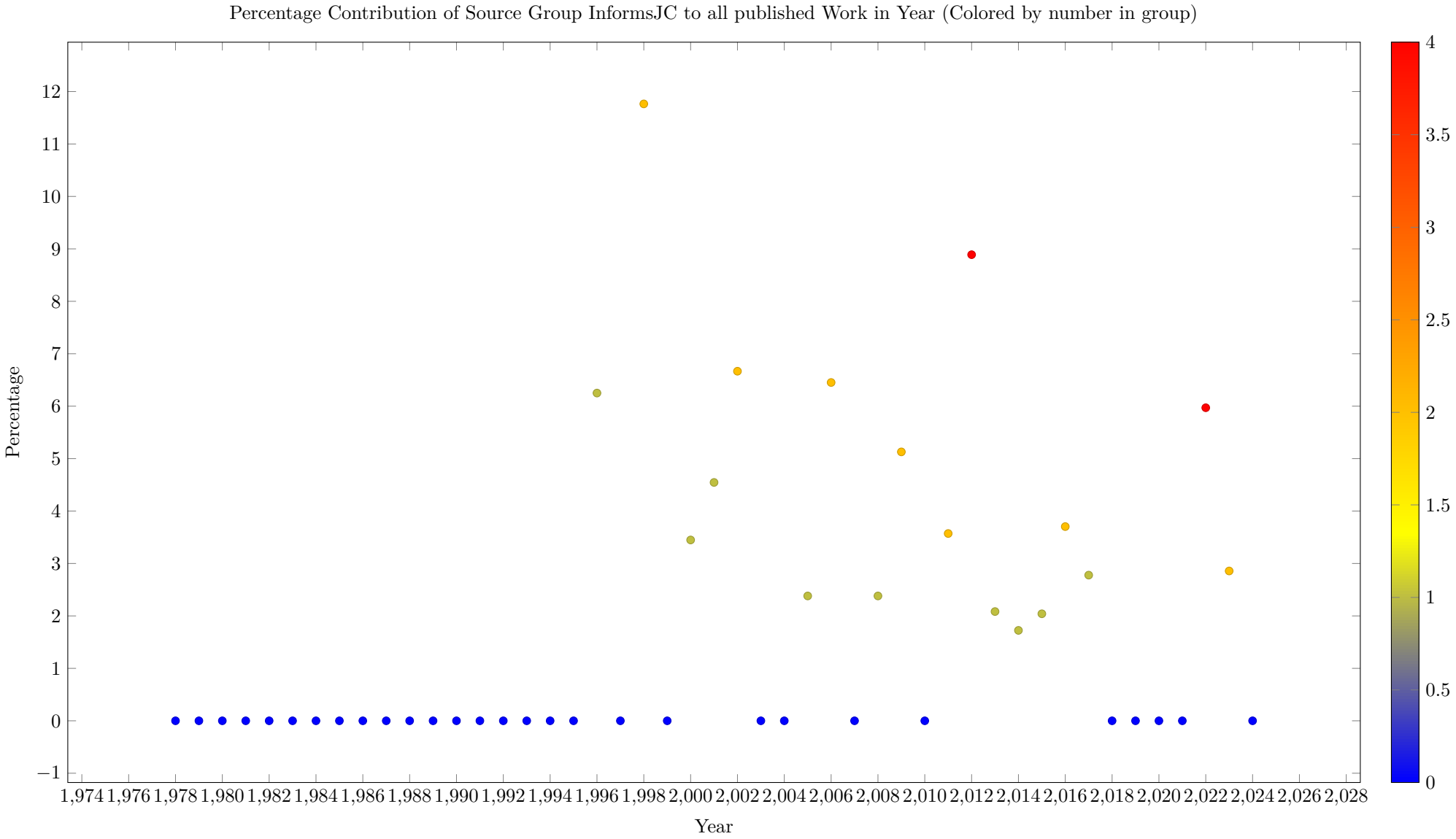

Percentage Contribution of Source Group IJCAI to all published Work in Year (Colored by number in group)
Percentage
110
100
90
80
70
60
50
40
30
20
10
0
−10
1,974 1,976 1,978 1,980 1,982 1,984 1,986 1,988 1,990 1,992 1,994 1,996 1,998 2,000 2,002 2,004 2,006 2,008 2,010 2,012 2,014 2,016 2,018 2,020 2,022 2,024 2,026 2,028
Year
4
3.5
3
2.5
2
1.5
1
0.5
0

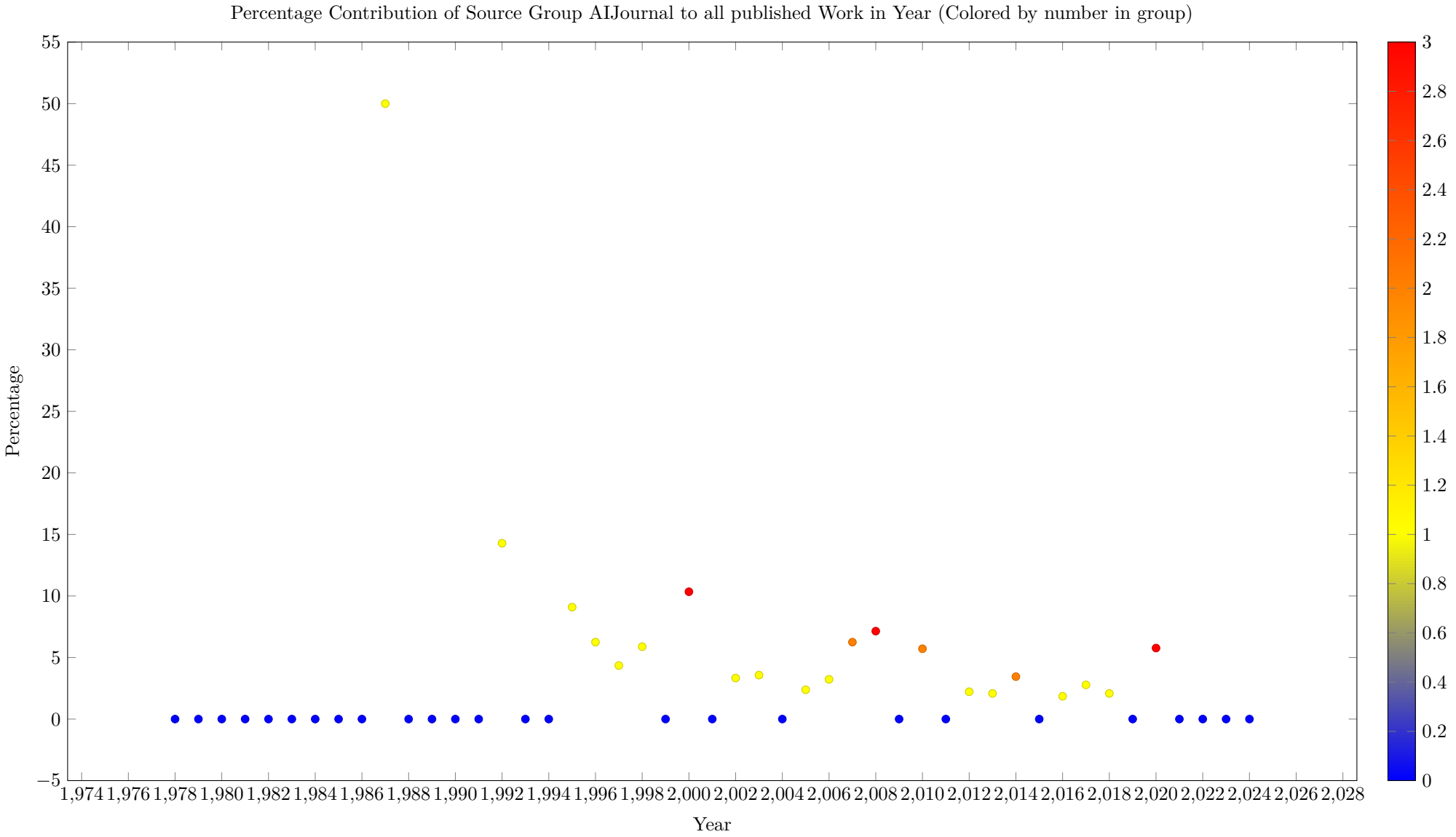

Percentage Contribution of Source Group ECAI to all published Work in Year (Colored by number in group)
Percentage
28
26
24
22
20
18
16
14
12
10
8
6
4
2
0
−2
1,974 1,976 1,978 1,980 1,982 1,984 1,986 1,988 1,990 1,992 1,994 1,996 1,998 2,000 2,002 2,004 2,006 2,008 2,010 2,012 2,014 2,016 2,018 2,020 2,022 2,024 2,026 2,028
Year
4
3.5
3
2.5
2
1.5
1
0.5
0

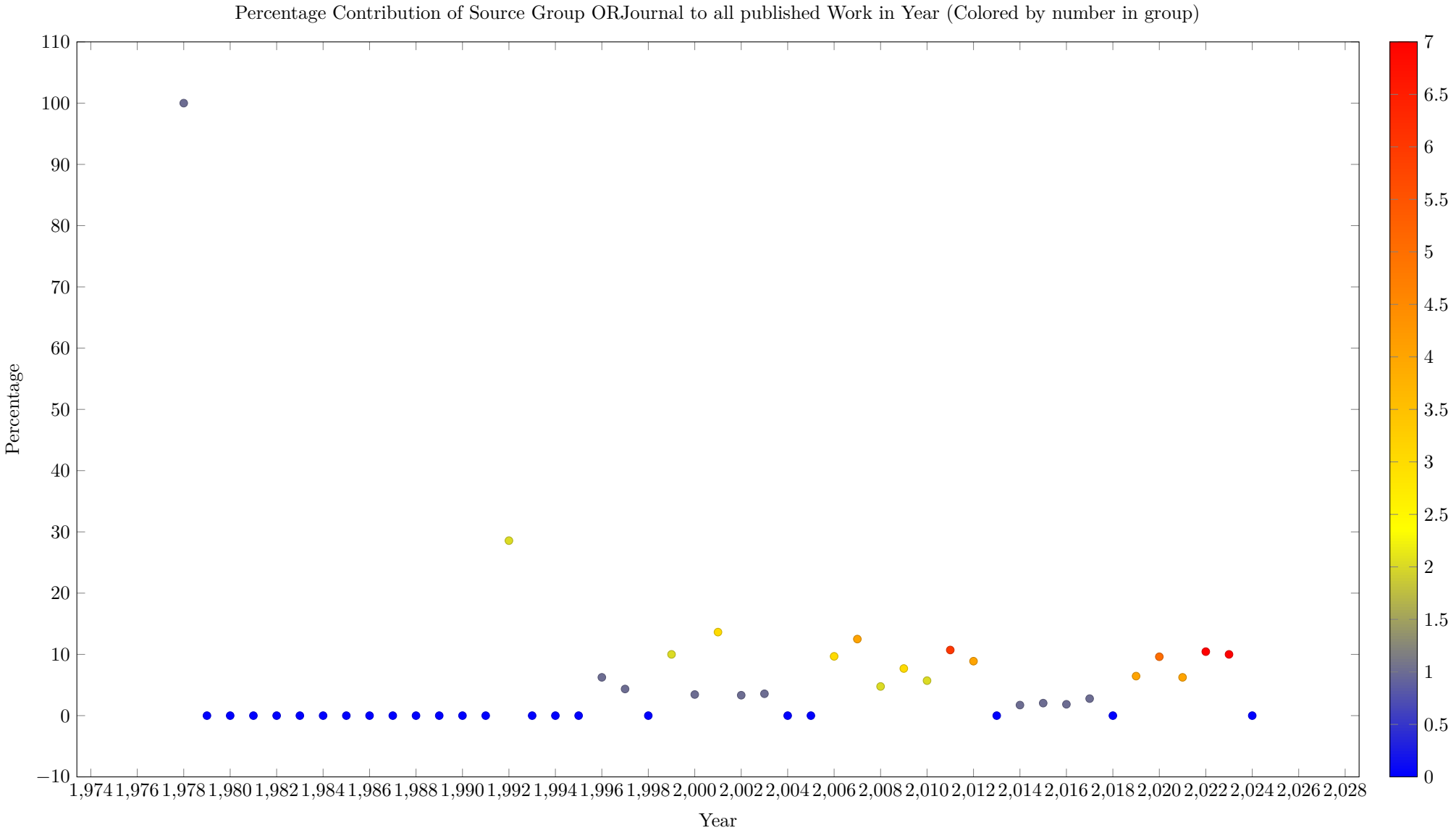

Percentage Contribution of Source Group OtherConf to all published Work in Year (Colored by number in group)
Percentage
55
50
45
40
35
30
25
20
15
10
5
0
−5
1,974 1,976 1,978 1,980 1,982 1,984 1,986 1,988 1,990 1,992 1,994 1,996 1,998 2,000 2,002 2,004 2,006 2,008 2,010 2,012 2,014 2,016 2,018 2,020 2,022 2,024 2,026 2,028
Year
11
10
9
8
7
6
5
4
3
2
1
0

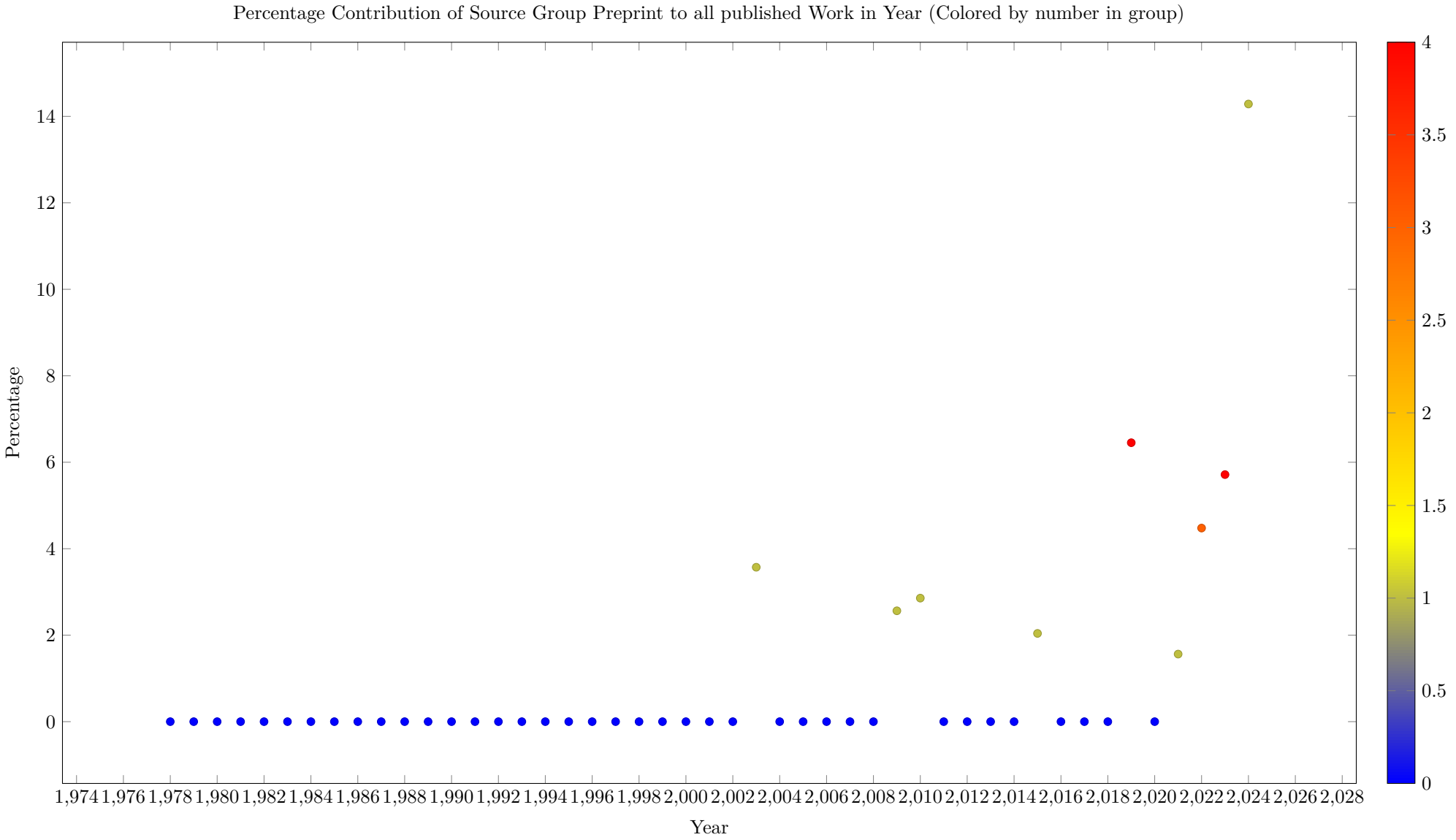

Percentage Contribution of Source Group Constraints to all published Work in Year (Colored by number in group)
Percentage
0
2
4
6
8
10
12
14
Year
1,974 1,976 1,978 1,980 1,982 1,984 1,986 1,988 1,990 1,992 1,994 1,996 1,998 2,000 2,002 2,004 2,006 2,008 2,010 2,012 2,014 2,016 2,018 2,020 2,022 2,024 2,026 2,028
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
5

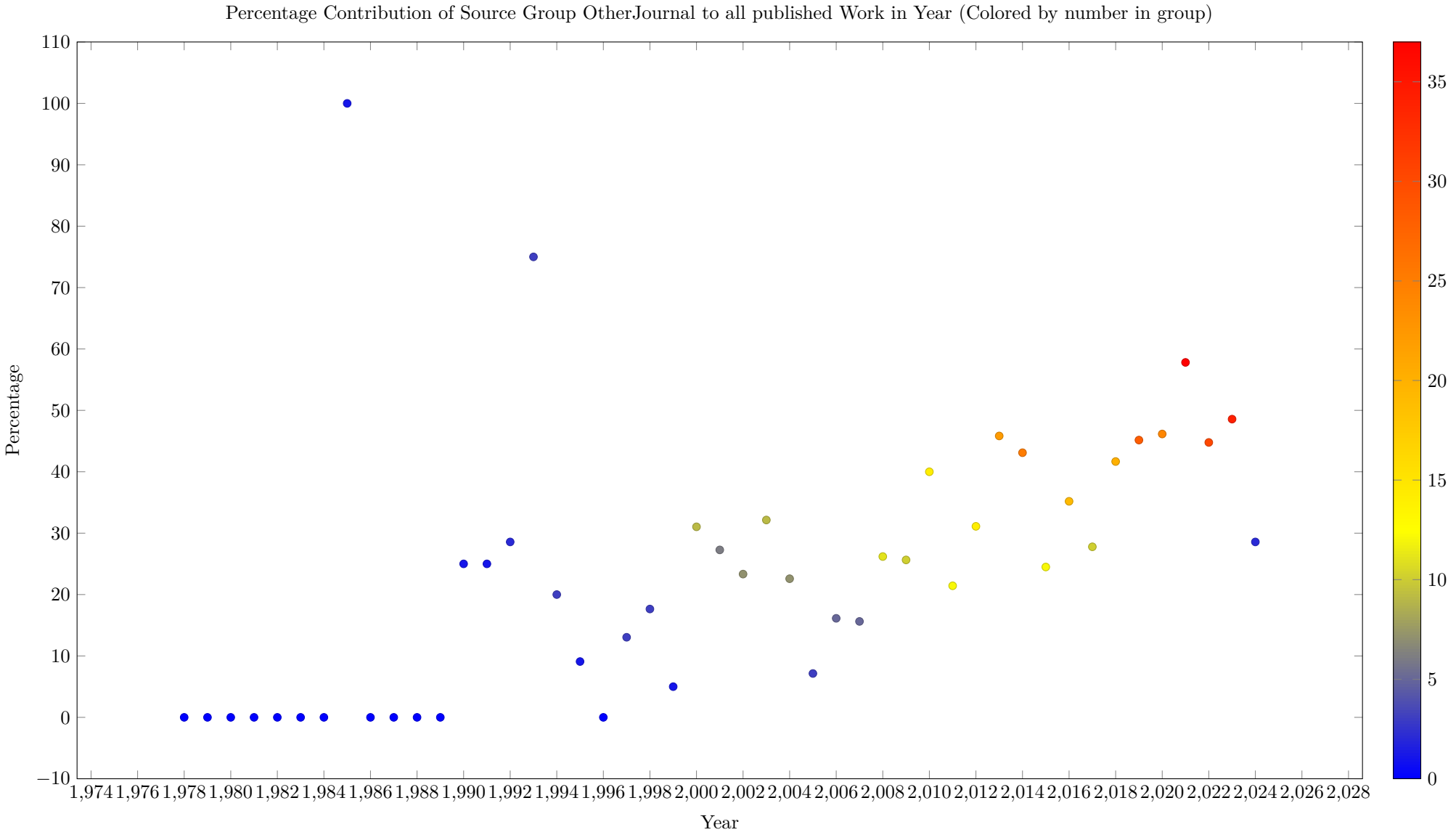

Percentage Contribution of Source Group EJOR to all published Work in Year (Colored by number in group)
Percentage
0
2
4
6
8
10
12
14
Year
1,974 1,976 1,978 1,980 1,982 1,984 1,986 1,988 1,990 1,992 1,994 1,996 1,998 2,000 2,002 2,004 2,006 2,008 2,010 2,012 2,014 2,016 2,018 2,020 2,022 2,024 2,026 2,028
0 0.2 0.4 0.6 0.8 1 1.2 1.4 1.6 1.8 2 2.2 2.4 2.6 2.8 3

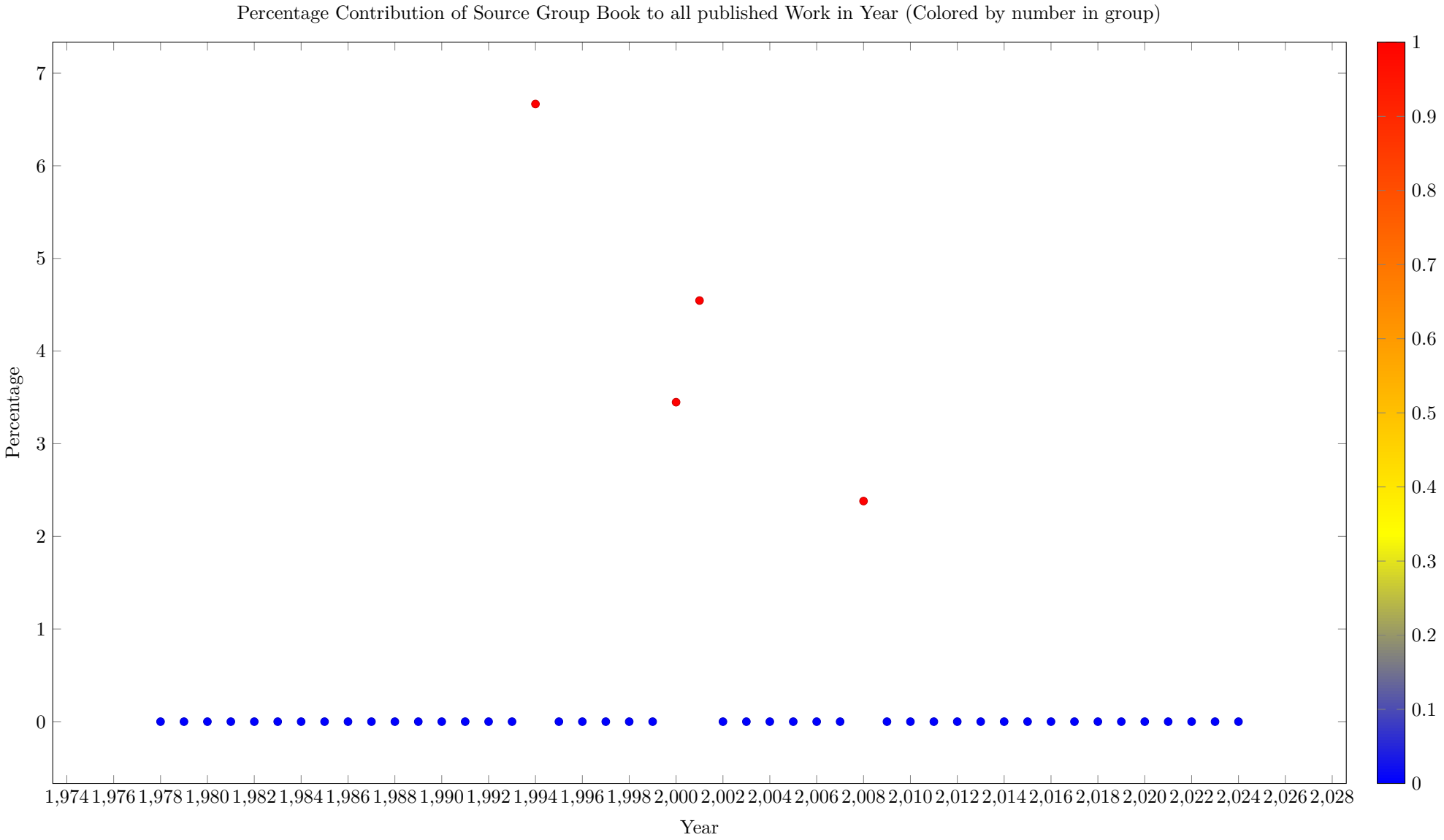

Percentage Contribution of Source Group InformsJC to all published Work in Year (Colored by number in group)
Percentage
Year
12
11
10
9
8
7
6
5
4
3
2
1
0
−1
1,974 1,976 1,978 1,980 1,982 1,984 1,986 1,988 1,990 1,992 1,994 1,996 1,998 2,000 2,002 2,004 2,006 2,008 2,010 2,012 2,014 2,016 2,018 2,020 2,022 2,024 2,026 2,028
4
3.5
3
2.5
2
1.5
1
0.5
0

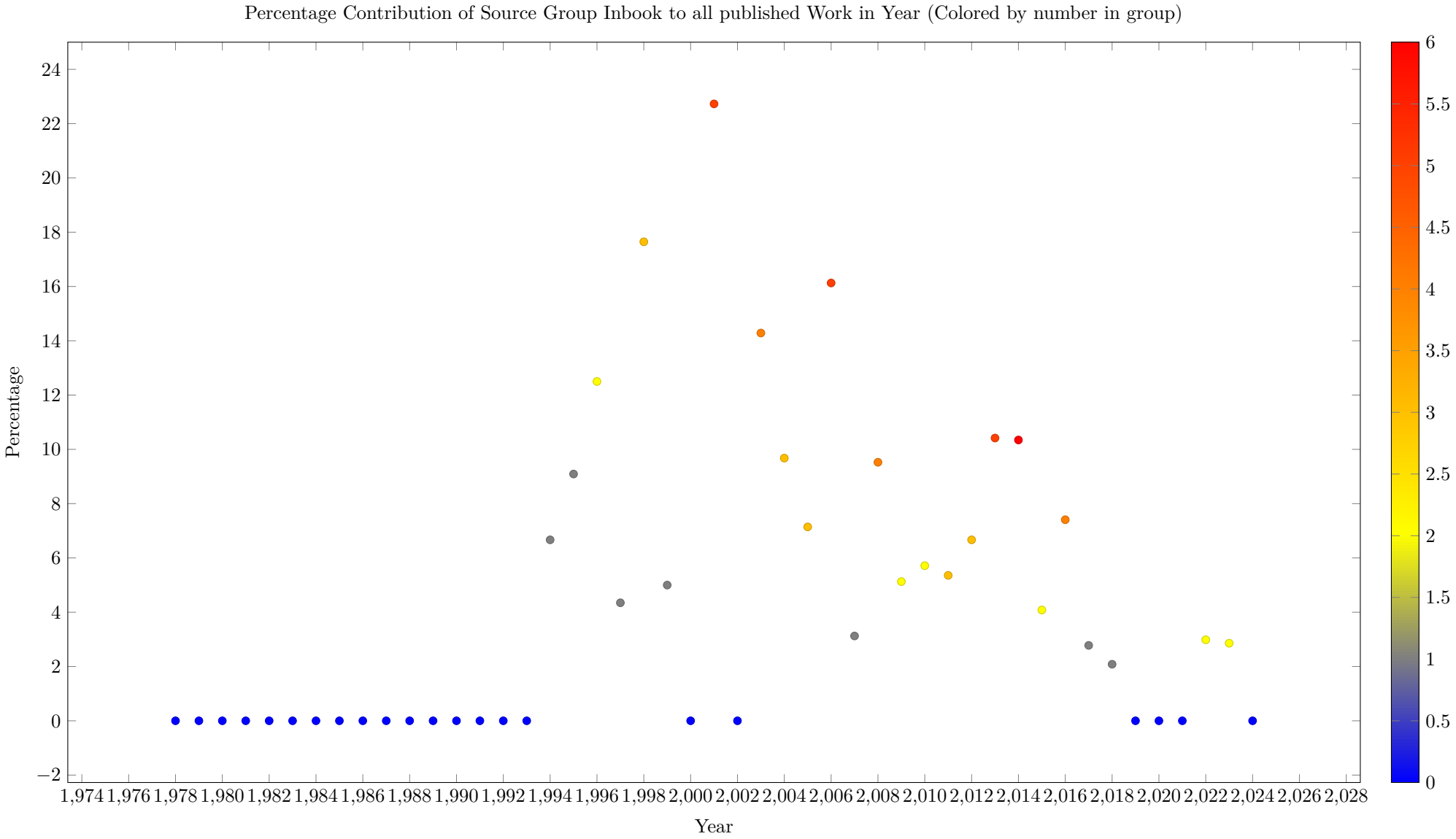

Percentage Contribution of Source Group AIJournal to all published Work in Year (Colored by number in group)
Percentage
55
50
45
40
35
30
25
20
15
10
5
0
−5
Year
1,974 1,976 1,978 1,980 1,982 1,984 1,986 1,988 1,990 1,992 1,994 1,996 1,998 2,000 2,002 2,004 2,006 2,008 2,010 2,012 2,014 2,016 2,018 2,020 2,022 2,024 2,026 2,028
3
2.8
2.6
2.4
2.2
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0

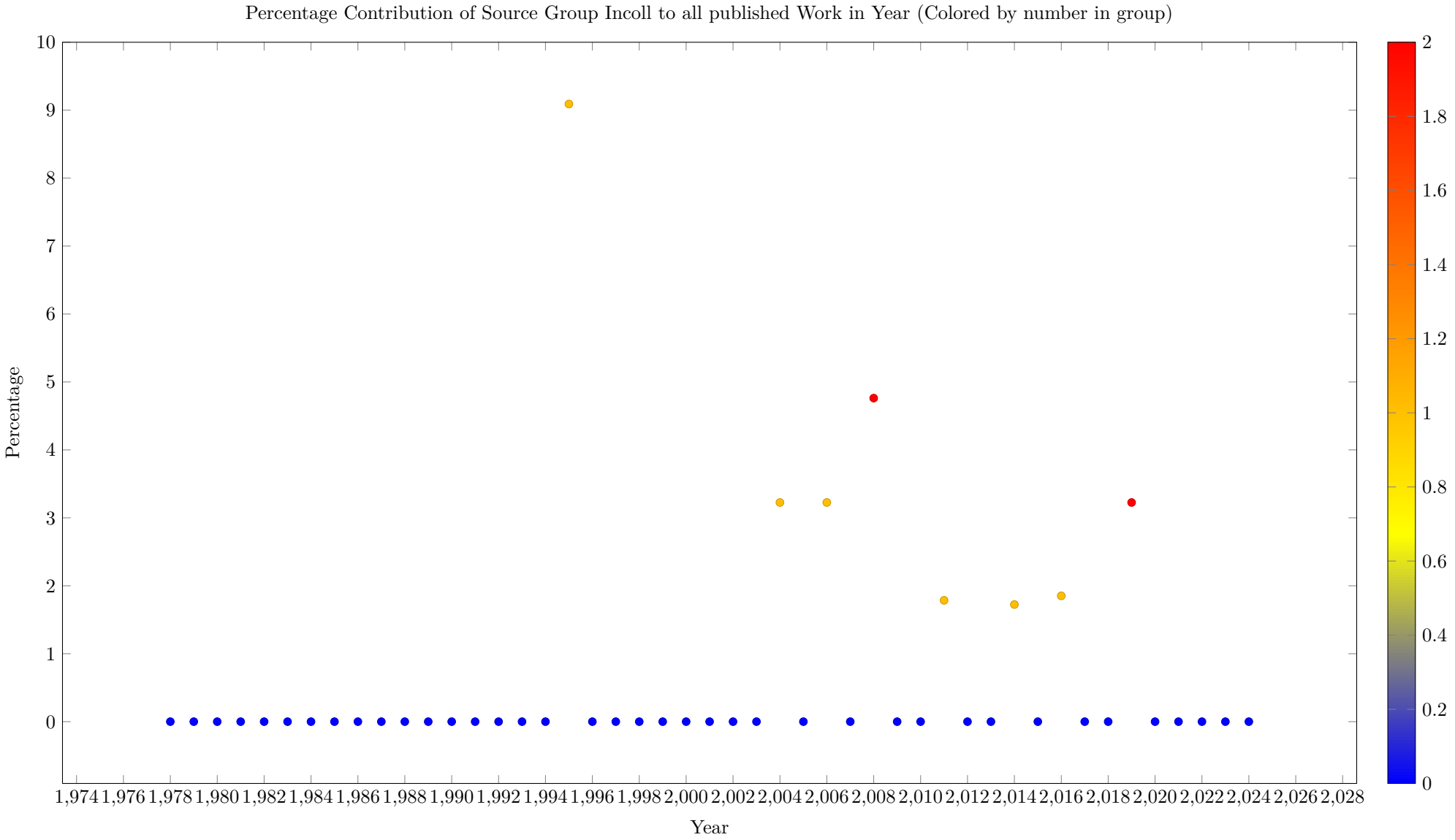

Percentage Contribution of Source Group ORJournal to all published Work in Year (Colored by number in group)
Percentage
110
100
90
80
70
60
50
40
30
20
10
0
−10
1,974 1,976 1,978 1,980 1,982 1,984 1,986 1,988 1,990 1,992 1,994 1,996 1,998 2,000 2,002 2,004 2,006 2,008 2,010 2,012 2,014 2,016 2,018 2,020 2,022 2,024 2,026 2,028
Year
7
6.5
6
5.5
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0

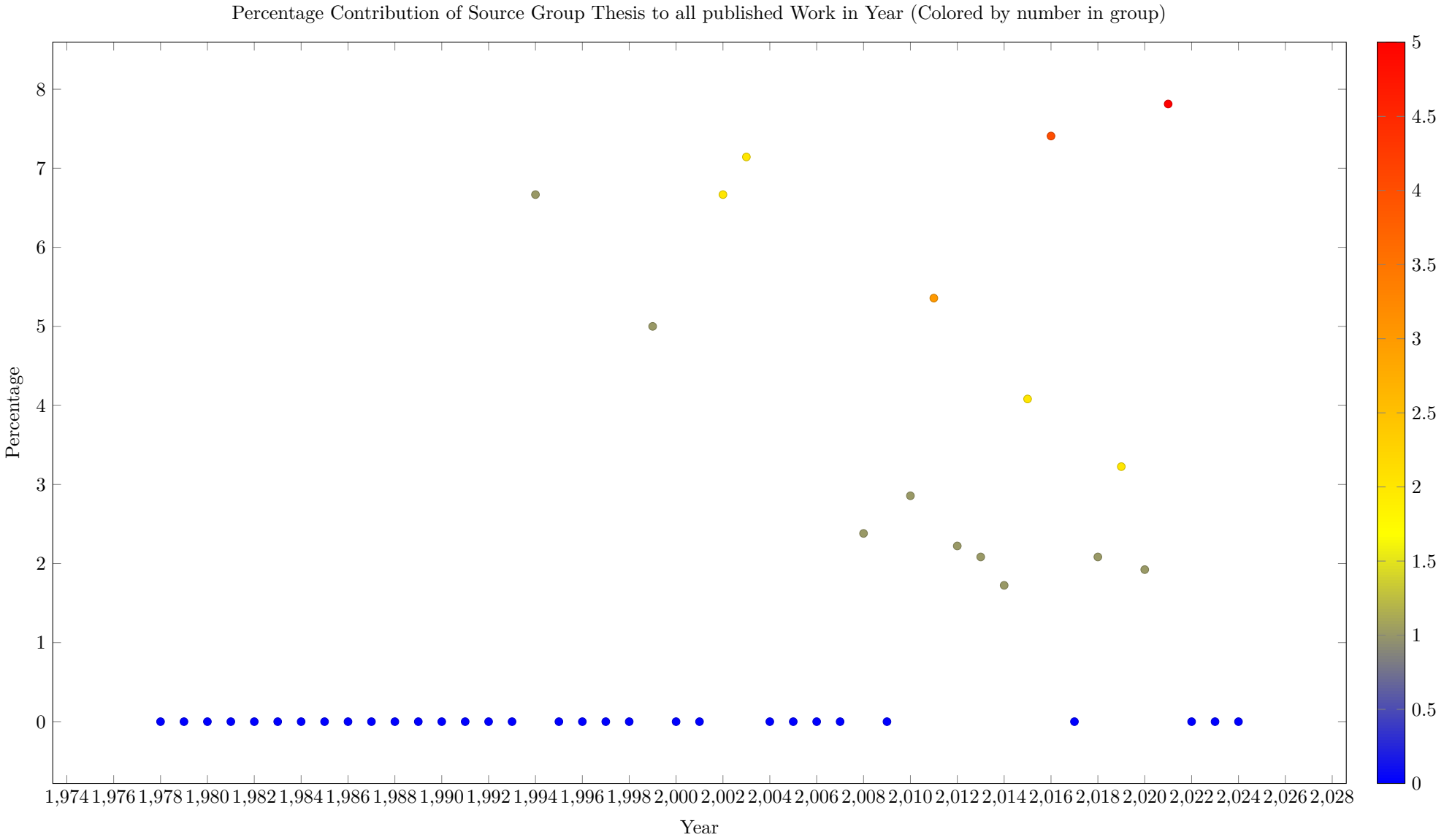

Percentage Contribution of Source Group Preprint to all published Work in Year (Colored by number in group)
Percentage
0
2
4
6
8
10
12
14
Year
1,974 1,976 1,978 1,980 1,982 1,984 1,986 1,988 1,990 1,992 1,994 1,996 1,998 2,000 2,002 2,004 2,006 2,008 2,010 2,012 2,014 2,016 2,018 2,020 2,022 2,024 2,026 2,028
0
0.5
1
1.5
2
2.5
3
3.5
4


Percentage Contribution of Source Group OtherJournal to all published Work in Year (Colored by number in group)
Percentage
110
100
90
80
70
60
50
40
30
20
10
0
−10
1,974 1,976 1,978 1,980 1,982 1,984 1,986 1,988 1,990 1,992 1,994 1,996 1,998 2,000 2,002 2,004 2,006 2,008 2,010 2,012 2,014 2,016 2,018 2,020 2,022 2,024 2,026 2,028
Year
35
30
25
20
15
10
5
0

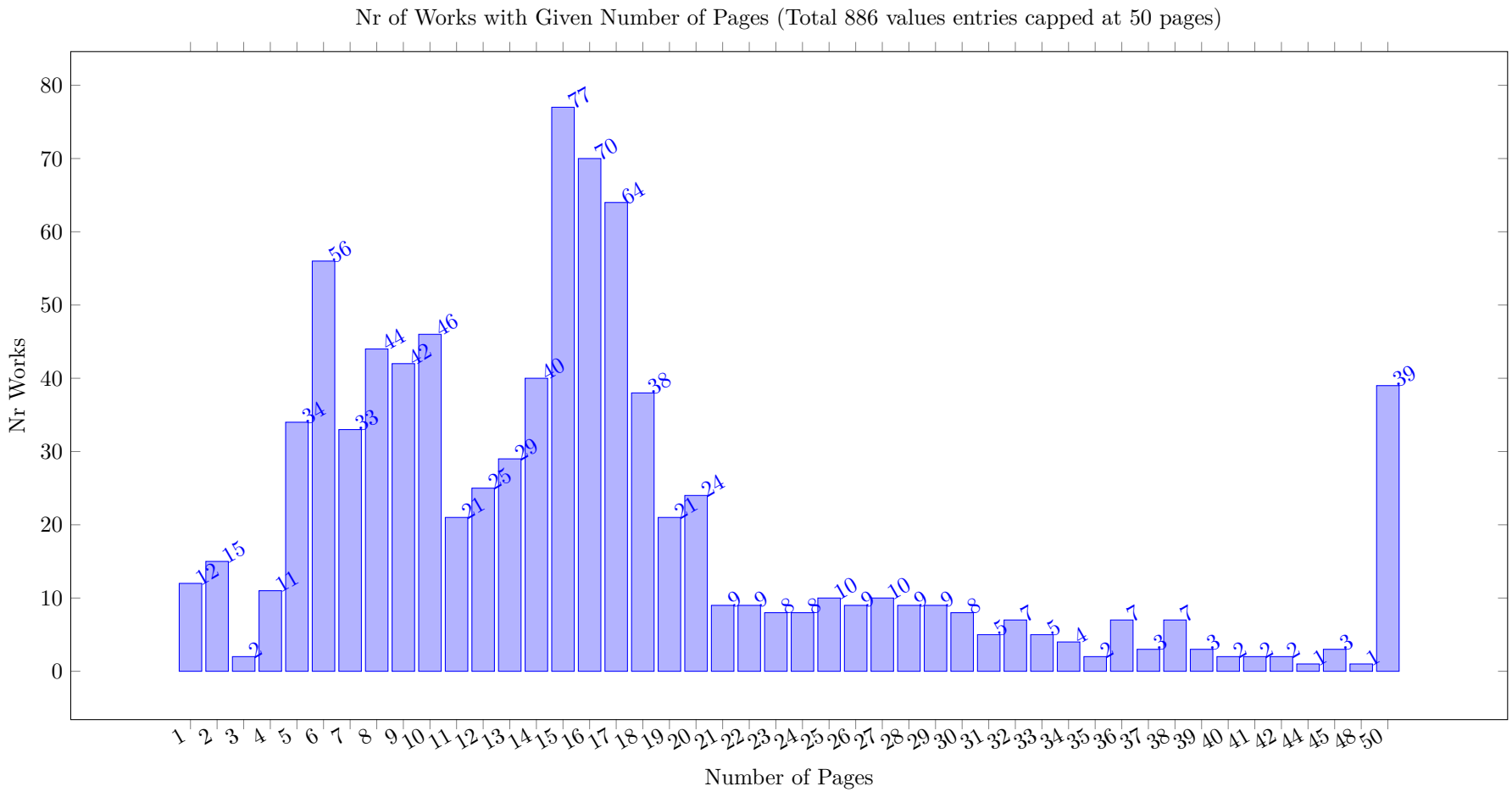

Percentage Contribution of Source Group Book to all published Work in Year (Colored by number in group)
Percentage
0
1
2
3
4
5
6
7
Year
1,974 1,976 1,978 1,980 1,982 1,984 1,986 1,988 1,990 1,992 1,994 1,996 1,998 2,000 2,002 2,004 2,006 2,008 2,010 2,012 2,014 2,016 2,018 2,020 2,022 2,024 2,026 2,028
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1


Percentage Contribution of Source Group Inbook to all published Work in Year (Colored by number in group)
Percentage
24
22
20
18
16
14
12
10
8
6
4
2
0
−2
1,974 1,976 1,978 1,980 1,982 1,984 1,986 1,988 1,990 1,992 1,994 1,996 1,998 2,000 2,002 2,004 2,006 2,008 2,010 2,012 2,014 2,016 2,018 2,020 2,022 2,024 2,026 2,028
Year
6
5.5
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0

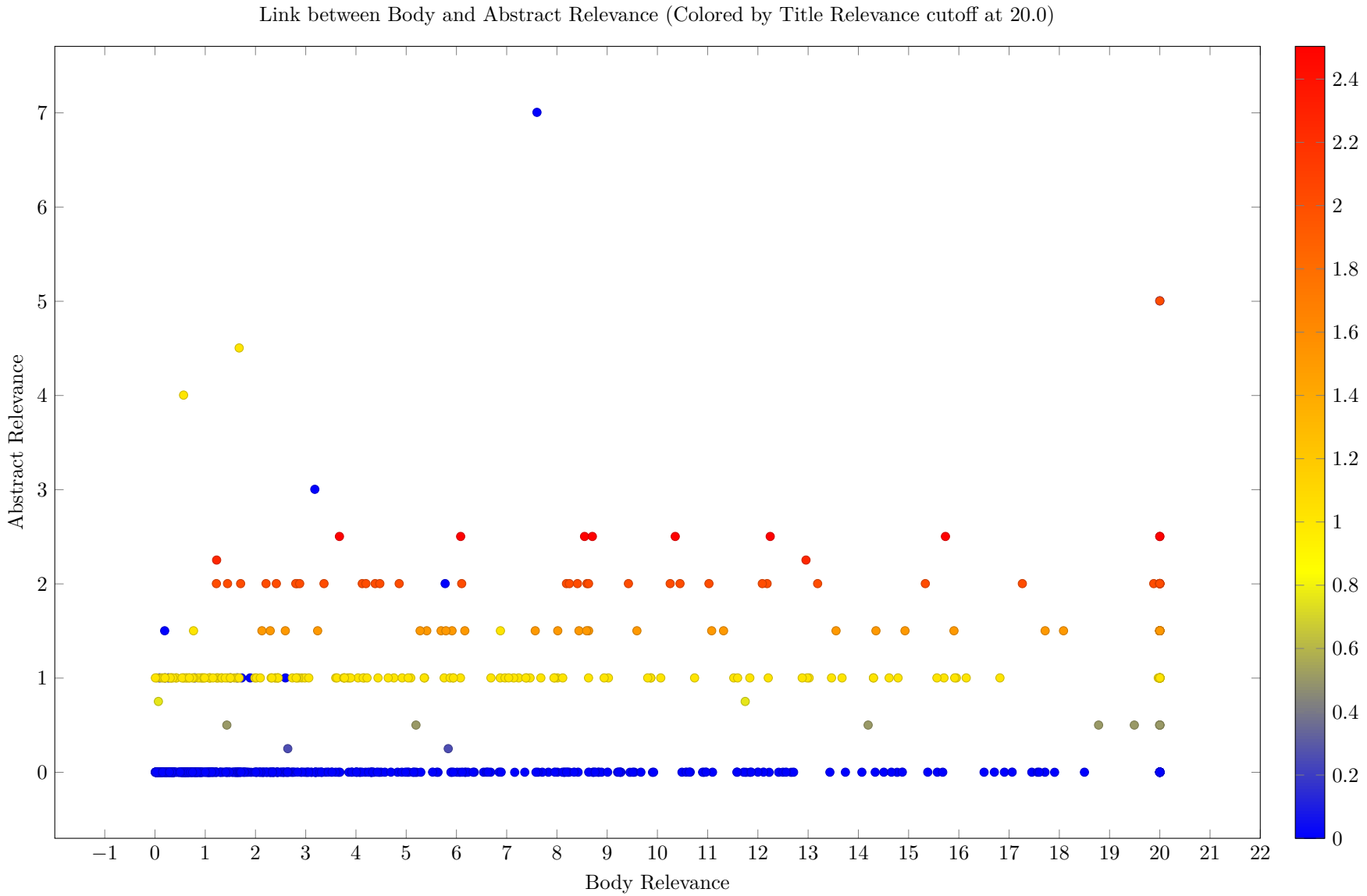

Percentage Contribution of Source Group Incoll to all published Work in Year (Colored by number in group)
Percentage
Year
0
1
2
3
4
5
6
7
8
9
10
1,974
1,976
1,978
1,980
1,982
1,984
1,986
1,988
1,990
1,992
1,994
1,996
1,998
2,000
2,002
2,004
2,006
2,008
2,010
2,012
2,014
2,016
2,018
2,020
2,022
2,024
2,026
2,028
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
1.8
2

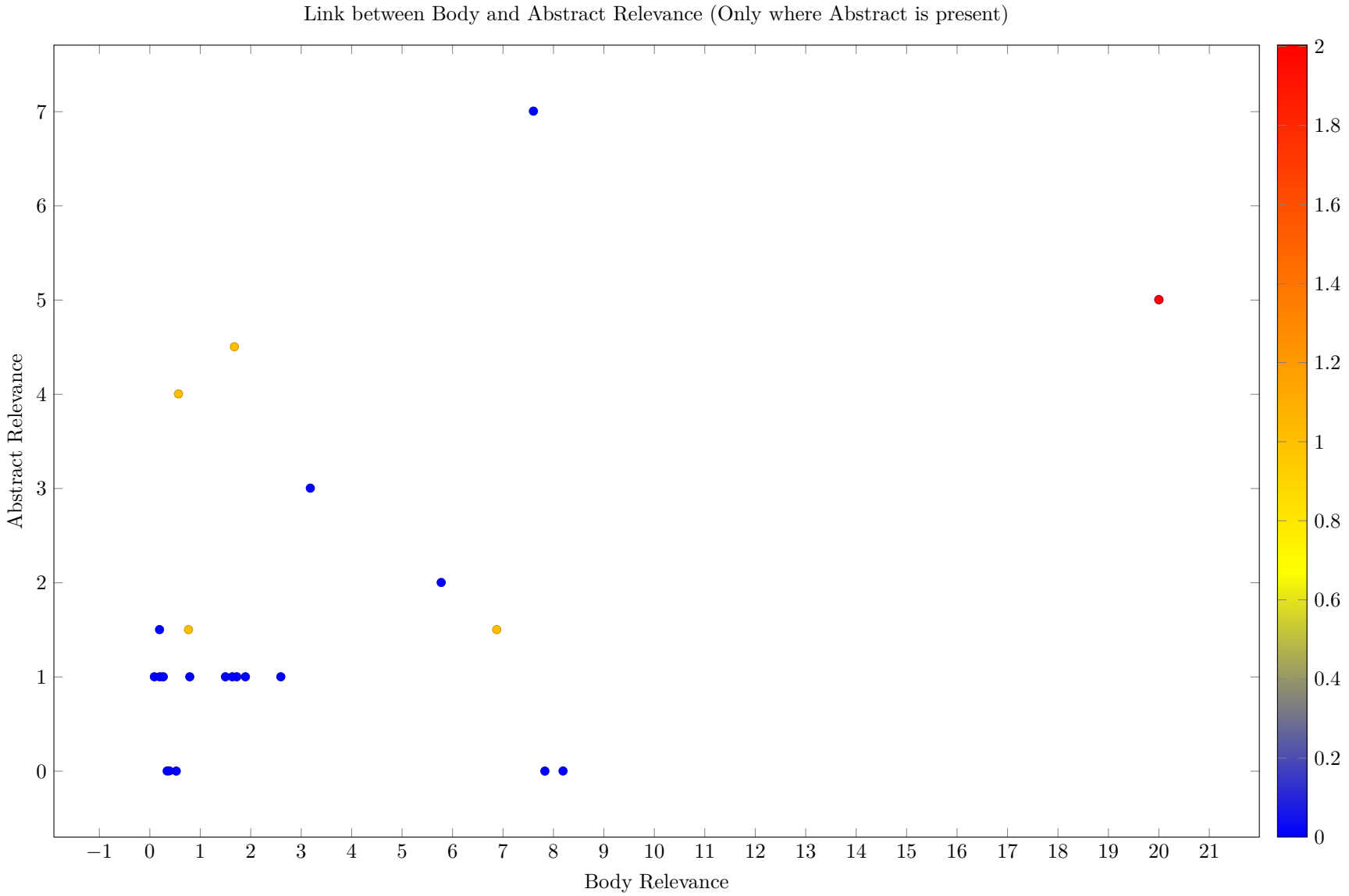

Percentage Contribution of Source Group Thesis to all published Work in Year (Colored by number in group)
Percentage
0
1
2
3
4
5
6
7
8
Year
1,974 1,976 1,978 1,980 1,982 1,984 1,986 1,988 1,990 1,992 1,994 1,996 1,998 2,000 2,002 2,004 2,006 2,008 2,010 2,012 2,014 2,016 2,018 2,020 2,022 2,024 2,026 2,028
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
5

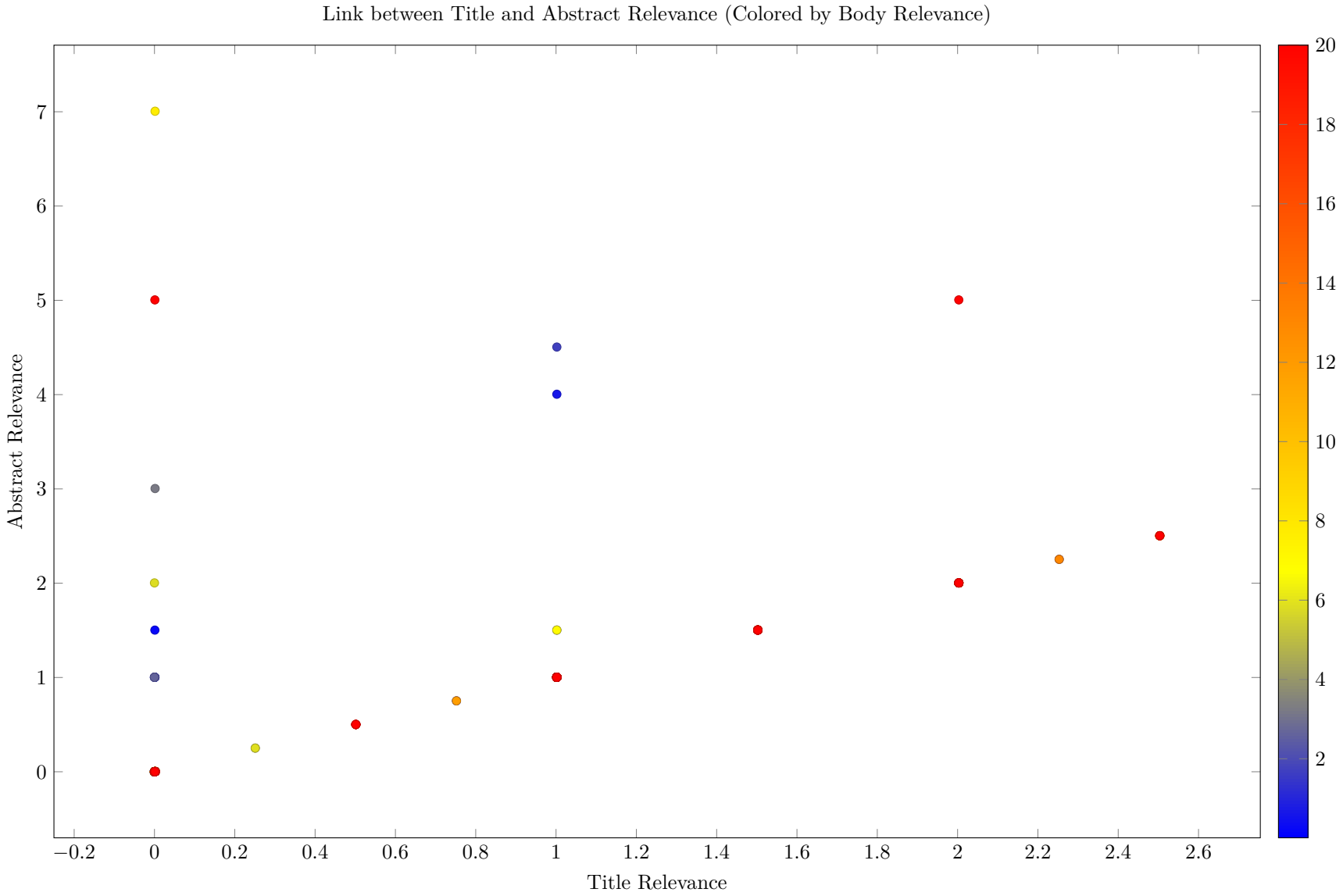
17 Page Length Distribution

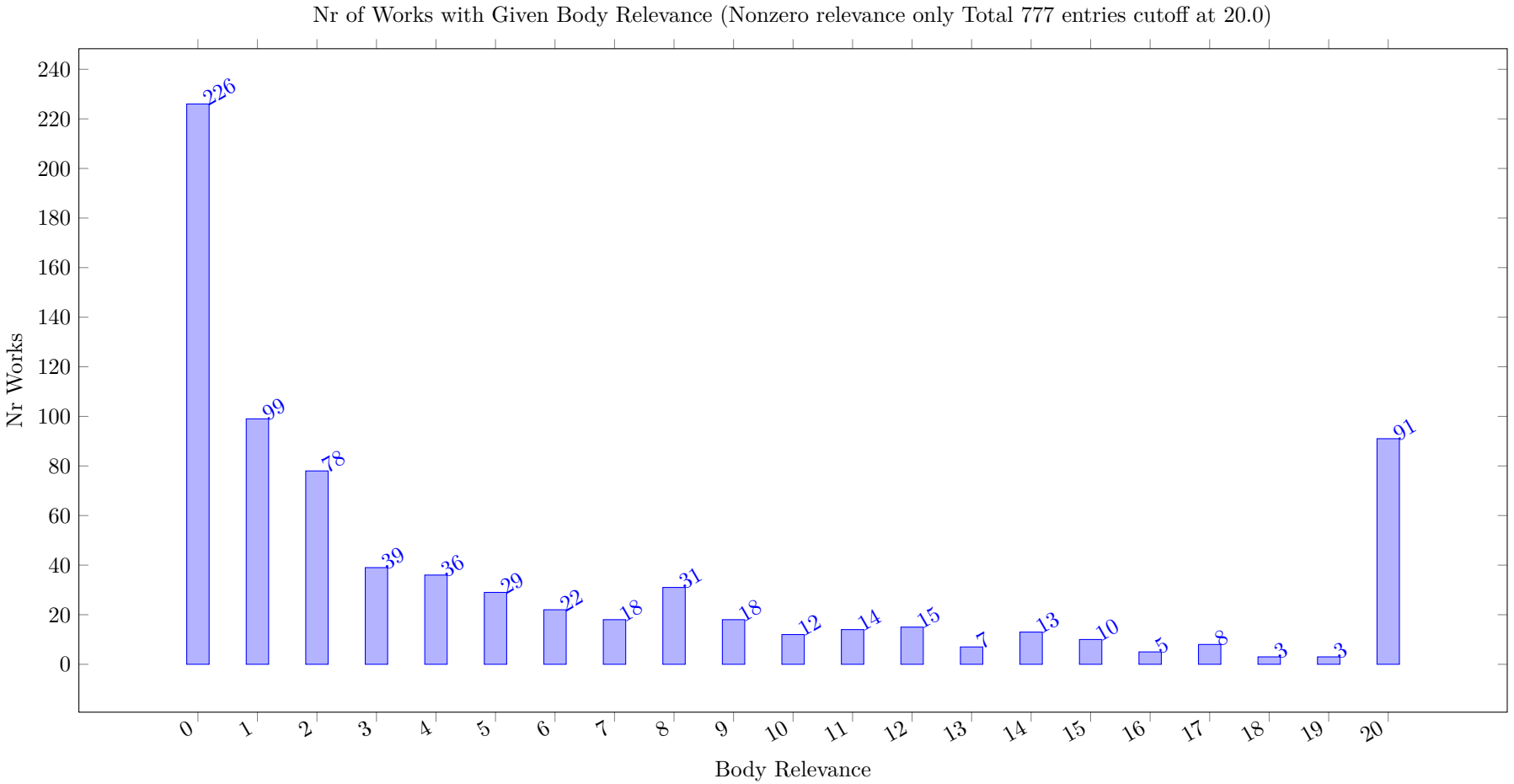


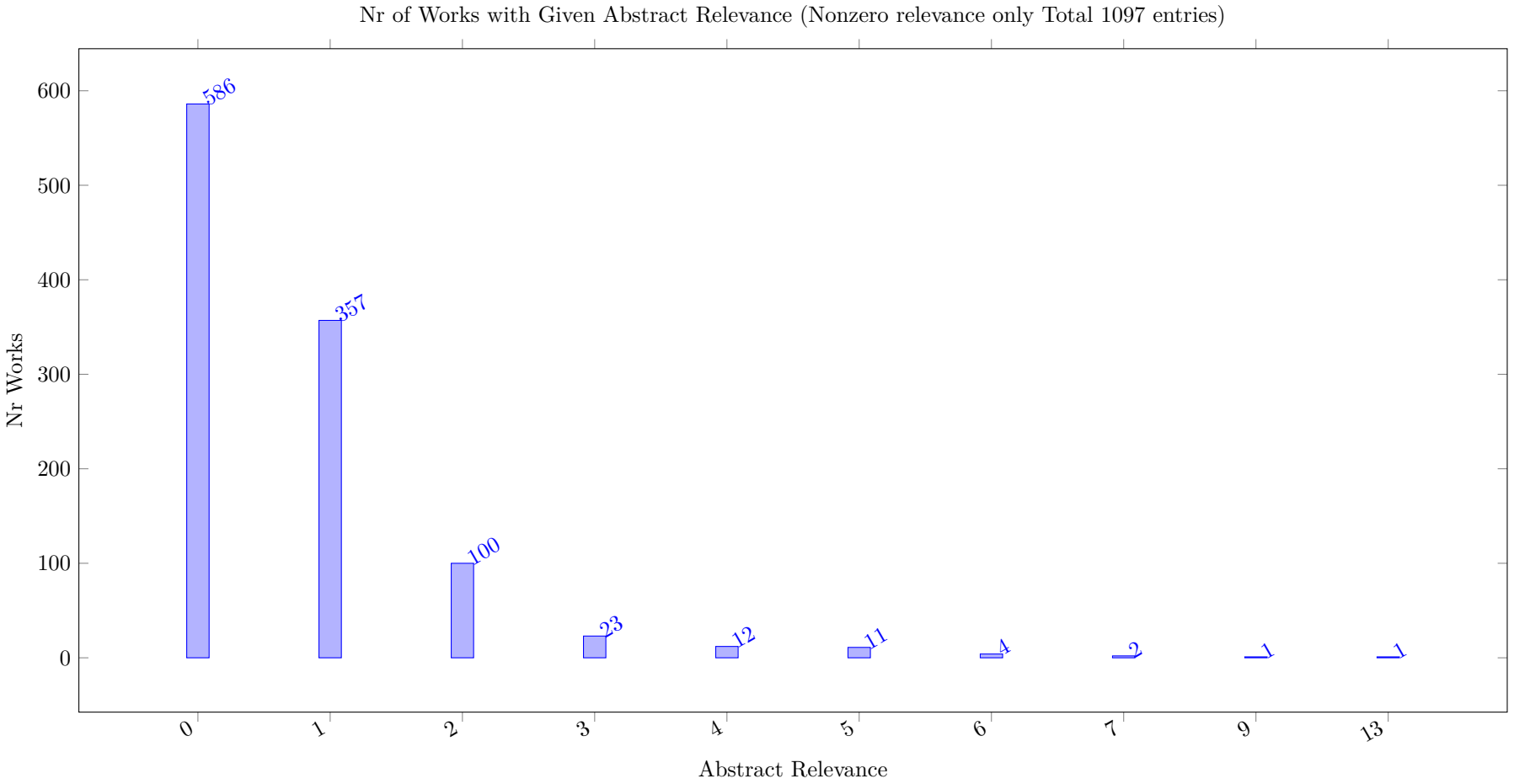
18 Relevance Distribution

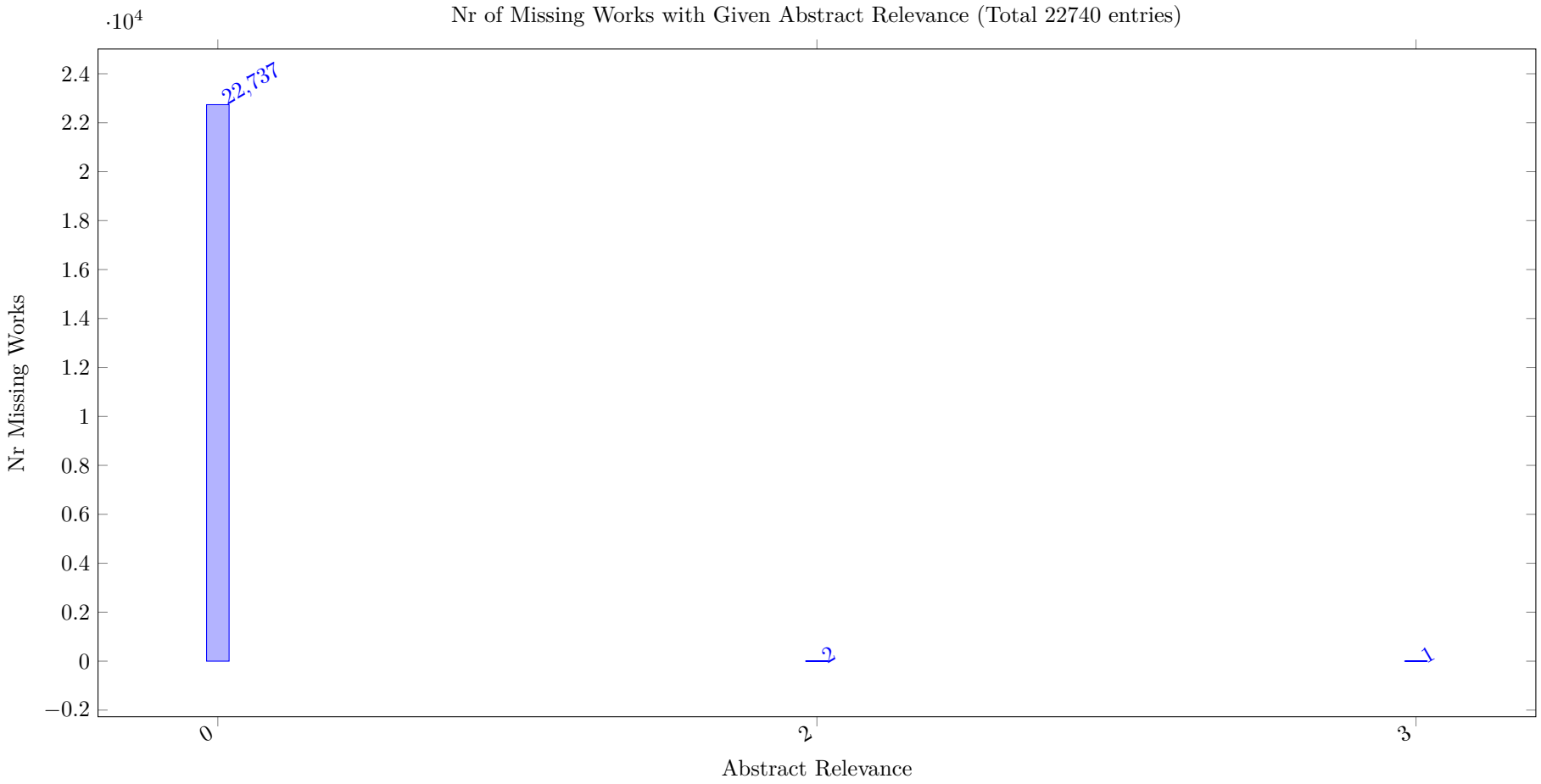


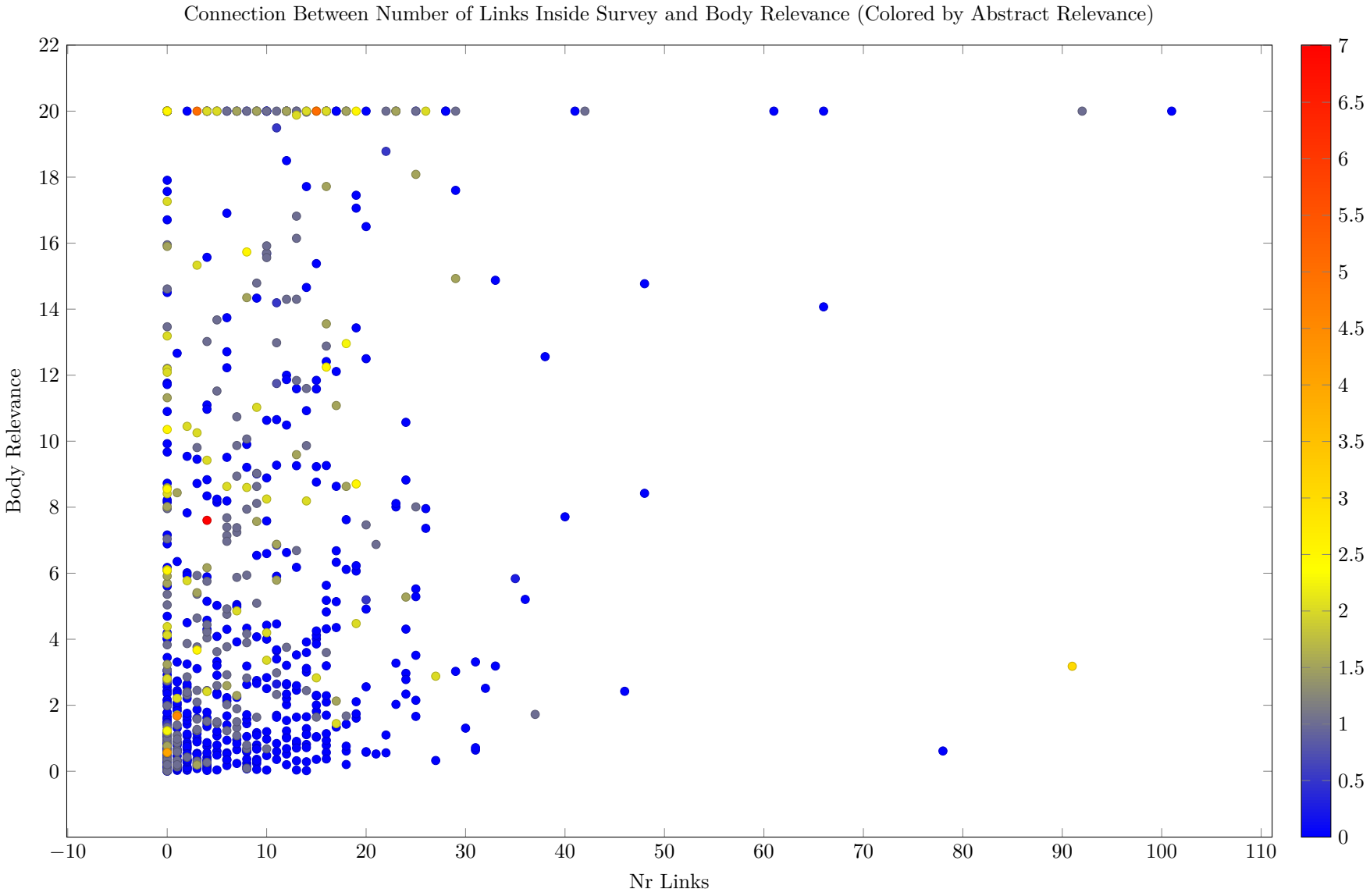

Link between Body and Abstract Relevance (Only where Abstract is present)
Abstract Relevance
Body Relevance
0
1
2
3
4
5
6
7
−1
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
1.8
2


Link between Title and Abstract Relevance (Colored by Body Relevance)
Abstract Relevance
Title Relevance
0
1
2
3
4
5
6
7
−0.2
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
1.8
2
2.2
2.4
2.6
2
4
6
8
10
12
14
16
18
20


Nr of Works with Given Body Relevance (Nonzero relevance only Total 777 entries cutoff at 20.0)
Nr Works
Body Relevance
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
0 20 40 60 80 100 120 140 160 180 200 220 240
226 99 78 39 36 29 22 18 31 18 12 14 15 7 13 10 5 8 3 3 91


Nr of Works with Given Abstract Relevance (Nonzero relevance only Total 1097 entries)
Nr Works
600
500
400
300
200
100
0
586
357
100
23
12
11
4
2
1
1
0
1
2
3
4
5
6
7
9
13
Abstract Relevance


Nr of Missing Works with Given Abstract Relevance (Total 22740 entries)
$\cdot 10^4$
2.4
2.2
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
−0.2
Nr Missing Works
22,737
2
1
0
2
3
Abstract Relevance


Connection Between Number of Links Inside Survey and Body Relevance (Colored by Abstract Relevance)
Body Relevance
Nr Links
22
20
18
16
14
12
10
8
6
4
2
0
−10
0
10
20
30
40
50
60
70
80
90
100
110
7
6.5
6
5.5
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0