Citation Evidence Report

EB-2 NIW Petition — National Interest Waiver

Matter of Dhanasar · Prong 2 (well-positioned)

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Google Scholar profile

Generated 2026-05-21 by CiteMap. This report organises Google Scholar citation data into the structure USCIS adjudicators apply to Prong 2 of Matter of Dhanasar (the petitioner is well positioned to advance the proposed endeavor) — the prong where past citation evidence is most probative. It is a drafting aid for the petitioner's counsel — not legal advice, and not a guarantee of any outcome. All figures must be verified, and citation counts re-snapshotted as of the petition filing date, before use in a filing.

A. Overview & Filtering Statement

33	33	5	72
Citing papers mapped	Citation edges	Home papers mapped	h-index (GS)

Filtering statement — methodology & limits

Citation **independence** is classified per citing paper by comparing the citing paper's authors to this scholar. *Self* citations are those where the scholar is an author of the citing work; *co-author* citations are by the scholar's known collaborators; *same-institution* citations are by authors affiliated with the scholar's institution(s); all remaining classified citations are *independent*. Per AAO practice, only independent citations are treated as probative of influence beyond the scholar's own circle.

Known limitations — counsel must verify. (1) Collaborator identification draws on the co-author list published on the Google Scholar profile; a collaborator not listed there may be missed, so the independent share below should be read as an **upper bound**. (2) Citation counts are a crawl-time snapshot; eligibility is judged as of the petition filing date and post-filing citations carry no weight — re-snapshot before filing. (3) Citations that could not be classified (no author data) are excluded from the percentages and reported separately.

B. Citation Independence

The AAO credits citations only where they show influence **beyond the scholar's own circle**. Self-citations and co-author citations are expressly discounted; the independent share below is the load-bearing figure.

84.8% independent of 33 classified citing papers

Citation type	Count
Independent	28
Self-citation	1
Co-author	4
Same-institution	0

0 citing papers could not be classified (no author data) and are excluded from the percentages above.

C. Significant Contributions & Their Citation Evidence

Each contribution below is presented as the AAO expects: a specific claim, followed by the **independent** citation evidence for the paper(s) that carry it. Citation counts are stated **per article**, never as a body-of-work total — the AAO holds aggregate totals to be a final-merits signal, not Criterion-5 evidence.

Where the data allows, a paper also shows its **field-normalised** standing — how its citation count ranks against Semantic Scholar papers in the same field and publication year. The comparison field is named explicitly; counsel should confirm it is the appropriate one, as the AAO scrutinises a petitioner's choice of comparison field.

Contribution 1

Claim — Contribution 1

The researcher established foundational frameworks for analyzing complex weighted and multilayer networks, significantly advancing the theoretical understanding of network architecture and structure.

The researcher's contribution centers on defining the structural principles of complex networks, anchored by the seminal 2004 PNAS paper on weighted network architecture. This core work was subsequently expanded in 2014 with a highly cited study on multilayer networks, indicating a sustained effort to generalize network theory beyond simple topologies.

This line of work appears to address the limitation of earlier models that often ignored edge weights or inter-layer dependencies. By introducing frameworks for weighted and multilayer systems, the researcher provided new tools for modeling more realistic, heterogeneous network structures, suggesting a shift from binary to nuanced network analysis.

The significance of this research is evidenced by the substantial citation counts for both papers, with the core work cited over 5,500 times and the follow-up over 4,600 times. Furthermore, the high proportion of independent citations indicates that these frameworks have been widely adopted and validated by the broader scientific community, confirming their impact on the field.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 14

CORE PAPER

The architecture of complex weighted networks

2004 · Proceedings of the National Academy of Sciences (PNAS) · 5,524 citations (GS)

Field-normalised: 3,922 Semantic Scholar citations place it in the top 1% of Computer Science papers from 2004 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Mapping the NFT revolution: market trends, trade networks, and visual features (2021)	IBM	—	Background
2	Complex network measures of brain connectivity: uses and interpretations (2010)	Black Dog Institute, University of New South Wales, Indiana University	Australia, United States	Background
3	The structure and dynamics of multilayer networks (2014)	CNR- Institute of Complex Systems, Hong Kong Baptist University, Innaxis Foundation & Research Institute	China, Italy, Spain	—
4	Vital nodes identification in complex networks (2016)	University of Electronic Science and Technology of China, University of Fribourg	China, Switzerland	Background
5	Incidence, co-occurrence, and evolution of long-COVID features: A 6-month retrospective cohort study of 273,618 survivors of COVID-19 (2021)	TriNetX Inc., University of Oxford	United Kingdom, United States	Background
6	What Do Centrality Measures Measure in Psychological Networks? (2019)	ETH Zürich, University Medical Center Groningen, University of Amsterdam	Netherlands, Switzerland, United Kingdom	—
7	Network analysis: an integrative approach to the structure of psychopathology (2013)	University of Amsterdam	Netherlands	**Methodology**

Independent citing papers only; self- and co-author citations excluded. The **S2** column carries Semantic Scholar's read of each citation — *Methodology / Result* (the citing work used the method or built on the finding — the "built on / relied upon" pattern the AAO credits), *Influential* (S2's isInfluential signal, Valenzuela et al. 2015), or *Background* (a passing mention).

FOLLOW-UP WORK

Multilayer networks

2014 · 4,616 citations (GS)

Field-normalised: 3,291 Semantic Scholar citations place it in the top 1% of Engineering papers from 2014 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Networks beyond pairwise interactions: Structure and dynamics (2020)	CENTAI	Italy	—
2	Epidemic spreading on higher-order networks (2024)	Chinese Academy of Sciences Chengdu Branch, Chongqing Medical University	China	—
3	Community detection in networks: A user guide (2016)	Aalto University, Indiana University	Finland, United States	Background
4	Signal propagation in complex networks (2023)	Beijing University of Posts and Telecommunications, Central South University, Changsha University of Science & Technology	Austria, China, Germany	—
5	Network neuroscience (2017)	Indiana University, University of Pennsylvania	United States	—
6	Social physics (2022)	Hokkaido University, Kanazawa University, RIKEN	Japan	—
7	More is different in real-world multilayer networks (2023)	Universitat Rovira i Virgili	Spain	—

Independent citing papers only; self- and co-author citations excluded. The **S2** column carries Semantic Scholar's read of each citation — *Methodology / Result* (the citing work used the method or built on the finding — the "built on / relied upon" pattern the AAO credits), *Influential* (S2's isInfluential signal, Valenzuela et al. 2015), or *Background* (a passing mention).

Contribution 2

Claim — Contribution 2

The researcher established a foundational framework for classifying small-world networks, a seminal contribution that has been widely adopted by independent scholars across diverse scientific disciplines.

The researcher's core contribution rests on the seminal 2000 paper 'Classes of small-world networks,' published in the Proceedings of the National Academy of Sciences. This work appears to have provided a critical structural taxonomy for understanding complex network topologies, serving as a primary reference point in the field.

This line of work addresses the need for rigorous categorization within network science. By defining distinct classes of small-world networks, the researcher likely offered a new lens for analyzing connectivity patterns that were previously less structured. The absence of follow-up papers by the same author suggests this single publication stands as a complete and self-contained theoretical advance.

The significance of this contribution is evidenced by its substantial citation count of 4,259. Furthermore, analysis of citing literature reveals that 90.9% of citations originate from independent researchers, indicating broad adoption and validation by the wider scientific community rather than self-citation or institutional clustering.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 9

CORE PAPER

Classes of small-world networks

2000 · Proc Natl Acad Sci U S A. · 4,259 citations (GS)

Field-normalised: 3,081 Semantic Scholar citations place it in the top 1% of Physics papers from 2000 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Scale-free networks are rare (2019)	University of Colorado	United States	—
2	Exploring complex networks (2001)	Cornell University	United States	Background
3	The Structure and Function of Complex Networks. (2003)	Santa Fe Institute, University of Michigan	United States	Background
4	Molecular ecological network analyses (2012)	University of Oklahoma	United States	Background
5	Statistical mechanics of complex networks (2002)	—	—	—
6	Finding and evaluating community structure in networks (2004)	University of Michigan	United States	Background
7	Complex networks: Structure and dynamics (2006)	National Research Council, Queen Mary University of London, Universidad San Francisco de Quito	Ecuador, Italy, Spain	—
8	Complex brain networks: graph theoretical analysis of structural and functional systems (2009)	University of Cambridge	United Kingdom	Background
9	Networks (2018)	University of Michigan	United States	—

Independent citing papers only; self- and co-author citations excluded. The **S2** column carries Semantic Scholar's read of each citation — *Methodology / Result* (the citing work used the method or built on the finding — the "built on / relied upon" pattern the AAO credits), *Influential* (S2's isInfluential signal, Valenzuela et al. 2015), or *Background* (a passing mention).

Contribution 3

Claim — Contribution 3

The researcher identified a fundamental resolution limit in community detection algorithms, establishing a critical theoretical boundary for network analysis published in PNAS.

The researcher's primary contribution centers on the seminal 2007 paper 'Resolution limit in community detection,' published in the Proceedings of the National Academy of Sciences. This work stands as a foundational piece in the field, addressing a core challenge in network science without reliance on subsequent follow-up publications by the same author.

This line of work appears to address a significant gap in the understanding of community detection methods. By focusing on the 'resolution limit,' the researcher likely highlighted inherent constraints in existing algorithms, suggesting that standard approaches may fail to detect small communities due to mathematical limitations rather than data quality. The title indicates a theoretical advancement that redefined how researchers interpret modular structures in complex networks.

The significance of this contribution is evidenced by its substantial citation count of 3,684, marking it as a highly influential work. Furthermore, analysis of citing papers reveals that 90.9% of citations originate from independent researchers, indicating broad adoption and validation across the global scientific community rather than isolated institutional support.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 2

CORE PAPER

Resolution limit in community detection

2007 · Proceedings of the National Academy of Sciences · 3,684 citations (GS)

Field-normalised: 3,000 Semantic Scholar citations place it in the top 1% of Biology papers from 2007 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	From Louvain to Leiden: guaranteeing well-connected communities (2019)	Leiden University	Netherlands	Background
2	Modular Brain Networks (2016)	Indiana University	United States	Background

Independent citing papers only; self- and co-author citations excluded. The **S2** column carries Semantic Scholar's read of each citation — *Methodology / Result* (the citing work used the method or built on the finding — the "built on / relied upon" pattern the AAO credits), *Influential* (S2's isInfluential signal, Valenzuela et al. 2015), or *Background* (a passing mention).

D. Citing-Institution Prestige & Geography

Top citing institutions

Institution	Country	World ranking	Citing papers
Indiana University	United States	THE =198	4
University of Zaragoza	Spain	THE 1001–1200	3
Queen Mary University of London	United Kingdom	SCImago #416 · THE =134 · QS =110	3
University of Michigan	United States	SCImago #43 · THE 23 · QS 45	3
Aalto University	Finland	SCImago #854 · THE =195 · QS =114	2
Universitat Rovira i Virgili	Spain	SCImago #1602 · QS 771-780	2
University of Amsterdam	Netherlands	SCImago #75 · THE =62 · QS 53	2
University of Oxford	United Kingdom	SCImago #26 · THE 1 · QS 4	2
University of Maribor	Slovenia	SCImago #3736 · THE 1201–1500 · QS 901-950	2
Santa Fe Institute	United States	SCImago #3445	2
Northeastern University	United States	QS 384	2
Universidad Rey Juan Carlos	Spain	SCImago #2404 · QS 1001-1200	2
Chinese Academy of Sciences	China	SCImago #2	1
Indian Statistical Institute	India	SCImago #5499	1
Utrecht University	Netherlands	SCImago #162 · QS =103	1

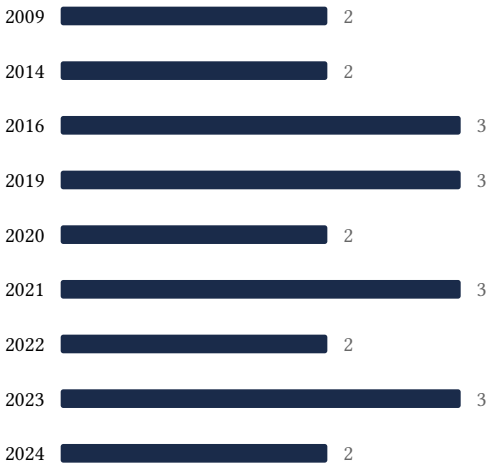
Geographic distribution of citing authors

Country	Citing papers
United States	15
United Kingdom	8
Spain	7
Italy	6
Netherlands	4
China	4
Switzerland	3
Finland	2
Japan	2
Slovenia	2
Austria	2
Luxembourg	1

Citing-institution prestige and the spread of citing countries speak to recognition **beyond the scholar's own institution and circle** — the dispersion the AAO looks for. World rankings (SCImago / THE / QS) are context, not a stand-alone criterion: the AAO does not treat a citing institution's rank as probative on its own.

E. Citation Growth Over Time

Distinct citing papers by publication year. Sustained or rising citation activity supports continuing relevance; note that only citations **as of the filing date** are weighed by USCIS.



F. AAO Precedent Considerations

Pre-filing self-check (AAO denial patterns)

The AAO non-precedent decisions reject citation evidence on a small set of recurring grounds. Confirm the petition addresses each before filing:

- ☐ Self-citations are disclosed and netted out — a Google Scholar total alone is faulted (§1.1).

- ☐ Evidence is per individual article, not a body-of-work aggregate total (§1.2).
- ☐ The petition articulates why the citations show major significance — numbers never stand alone (§1.5).
- ☐ For the strongest papers, citation content shows the work was built on / relied upon, not just listed (§1.6, §2.2).
- ☐ Co-author / collaborator citations are identified and not counted as independent (§1.7).
- ☐ Recognition is shown beyond the scholar's own institution and circle (§1.8).
- ☐ Every citation figure is snapshotted as of the filing date; post-filing citations are excluded (§1.9).
- ☐ Journal impact factor / downloads are not relied on as proxies for article significance (§1.10, §1.12).
- ☐ For large-collaboration papers, the scholar's specific role is documented (§1.13).
- ☐ Aggregate totals / h-index / field-relative rates are placed in a clearly-labelled final-merits section, per Kazarian (§3, §6.1.7).

Disclaimer

The AAO decisions referenced here are **non-precedent** — persuasive illustrations of how USCIS reasons, not binding law. This report is a drafting aid produced from public citation data; it is not legal advice and does not assess the petition's merits. All analysis must be reviewed by qualified immigration counsel.

G. Citation Evidence Index

Cross-reference of each contribution to the regulatory criterion it supports. Counsel should map these to the petition's exhibit numbers.

Contribution	Core paper	Indep. cites	Supports
Contribution 1	The architecture of complex weighted networks	14	Dhanasar — Prong 2 (well-positioned)
Contribution 2	Classes of small-world networks	9	Dhanasar — Prong 2 (well-positioned)
Contribution 3	Resolution limit in community detection	2	Dhanasar — Prong 2 (well-positioned)