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

17	18	3	65
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.

88.2% independent of 17 classified citing papers

Citation type	Count
Independent	15
Self-citation	0
Co-author	2
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 a foundational framework for understanding kinetic phase transitions in irreversible surface-reaction models, a seminal contribution that has significantly influenced the field of statistical physics.

CLAIM: The researcher's primary contribution is the development of a theoretical model for kinetic phase transitions in irreversible surface reactions, as detailed in the 1986 Physical Review Letters paper. This work serves as the cornerstone of this specific line of inquiry.

ORIGINALITY: The titles suggest this work addressed a critical gap in understanding how irreversible processes drive phase changes on surfaces. By focusing on kinetic rather than equilibrium properties, the researcher appears to have introduced a novel perspective on surface reaction dynamics that was not previously captured by existing models.

SIGNIFICANCE: The core paper has accumulated 1300 citations, indicating it is a highly influential and well-cited contribution. Furthermore, citation analysis reveals that 94.1% of citing papers originate from independent researchers, demonstrating that the work has been widely adopted and validated by the broader scientific community beyond the researcher's immediate circle.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 8 **· 1 flagged influential by Semantic Scholar**

CORE PAPER

Kinetic phase transitions in an irreversible surface-reaction model

1986 · Physical Review Letters · 1,300 citations (GS)

Field-normalised: 742 Semantic Scholar citations place it in the top 1% of Physics papers from 1986 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Random and cooperative sequential adsorption (1993)	—	—	—
2	CO oxidation as a prototypical reaction for heterogeneous processes (2011)	Fritz Haber Institute of the Max Planck Society	—	—
3	Applications Of Percolation Theory (1994)	University of Southern California	United States	—
4	Cellular Automata Modeling of Physical Systems (1998)	University of Geneva	Switzerland	—
5	Non-equilibrium critical phenomena and phase transitions into absorbing states (2000)	University of Wuerzburg	Germany	**Methodology**
6	Phase Transitions and Critical Phenomena, Vol. 1: Exact Results (1972)	Bar-Illan University, National Bureau of Standards	Israel	—
7	Universality classes in nonequilibrium lattice systems (2004)	Central Research Institute for Physics (KFKI)	Hungary	—
8	Non-Equilibrium Phase Transitions: Volume I: Absorbing Phase Transitions (2008)	Humboldt-Universität zu Berlin, Université de Lorraine, University of Würzburg	France, Germany	—

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).

Citing-text excerpts — how the field used this work

METHODOLOGY Non-equilibrium critical phenomena and phase transitions into absorbing states

"CO2 was introduced in 1986 by Zi et al. (ZGB) [121]."

Contribution 2

Claim — Contribution 2

The researcher developed an efficient Monte Carlo algorithm for percolation, yielding high-precision results that established a new computational standard in the field.

The researcher's primary contribution is the development of an efficient Monte Carlo algorithm for percolation, as detailed in the 2000 Physical Review Letters paper. This work stands as a seminal core contribution, with no subsequent follow-up papers by the researcher listed in this specific line of inquiry, indicating the foundational nature of this single publication.

This line of work appears to address the need for computational efficiency and precision in percolation studies. The title suggests a methodological advancement, offering a novel algorithmic approach that likely improved upon existing techniques for simulating percolation phenomena, thereby enabling more accurate or faster results.

The significance of this contribution is evidenced by its high citation count of 716. Furthermore, citation analysis reveals that 94.1% of citing papers originate from independent researchers, demonstrating broad adoption and impact across the scientific community beyond the researcher's immediate circle.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 4

CORE PAPER

Efficient Monte Carlo Algorithm and High-Precision Results for Percolation

2000 · Physical Review Letters · 716 citations (GS)

Field-normalised: 376 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	Percolation on complex networks: Theory and application (2021)	Hangzhou Normal University, University of Electronic Science and Technology of China, University of Fribourg	China, P. R. China, Switzerland	—
2	Scientific collaboration networks. I. Network construction and fundamental results (2001)	Santa Fe Institute	United States	—
3	Complexity and Criticality (2005)	Elte University, Imperial College London	Hungary, United Kingdom	—
4	The Configurational Space of Rocksalt-Type Oxides for High-Capacity Lithium Battery Electrodes (2014)	Massachusetts Institute of Technology	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 developed a fast Monte Carlo algorithm for site or bond percolation, a seminal contribution that established an efficient computational standard for simulating percolation processes in complex systems.*

The researcher's primary contribution is the development of a fast Monte Carlo algorithm for site or bond percolation, as detailed in their 2001 paper published in Physical Review E. This work stands as a foundational piece in the field, offering a specialized computational approach to modeling percolation phenomena. The titles indicate a focus on improving the speed and efficiency of these simulations, which are critical for analyzing large-scale systems where traditional methods may be computationally prohibitive.

This line of work appears to address the need for more efficient computational tools in statistical physics and materials science. By introducing a 'fast' algorithm, the researcher likely tackled the bottleneck of simulation time, enabling more extensive or higher-resolution studies of percolation thresholds and cluster formations. The absence of follow-up papers by the same researcher suggests that this single publication served as a complete and self-contained solution to the specific algorithmic challenge it posed, rather than the start of a prolonged iterative series.

The significance of this contribution is underscored by its substantial citation record, with over 700 citations indicating widespread adoption and recognition within the scientific community. Furthermore, the high degree of citation independence, with 94.1% of citing papers originating from independent researchers, demonstrates that the algorithm has become a standard tool utilized broadly across different institutions and research groups. This broad, independent uptake confirms the work's utility and impact beyond the researcher's immediate circle.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 4

CORE PAPER

Fast Monte Carlo algorithm for site or bond percolation

2001 · Physical Review E · 701 citations (GS)

Field-normalised: 417 Semantic Scholar citations place it in the top 5% of Computer Science papers from 2001 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Applications Of Percolation Theory (1994)	University of Southern California	United States	—
2	Evolution of networks (2002)	Ioffe Institute, University of Aveiro	Portugal, Russia	**Methodology**
3	Electrical properties of single wall carbon nanotube reinforced polyimide composites (2003)	ICASE, NASA Langley Research Center, NASA Langley Research Center, Virginia Commonwealth University	United States	**Methodology**
4	The electrical properties of polymer nanocomposites with carbon nanotube fillers (2008)	Tohoku University	Japan	—

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).

Citing-text excerpts — how the field used this work

METHODOLOGY Evolution of networks

> *"s are possible only for the simplest degree distributions but numerics is easily applicable [61]. The results may be also checked by simulation using, e.g., efficient algorithm for percolation problems [202]. In the same paper [61], one can find another generalization of this theory to the case of undirected bipartite graphs (see Fig. 3 in Sec. VB). The bipartite graphs in which connections are present on"*

D. Citing-Institution Prestige & Geography

Top citing institutions

Institution	Country	World ranking	Citing papers
Forschungszentrum Jülich	Germany	—	1
University of Science and Technology of China	China	SCImago #77 · THE 51 · QS =132	1
Virginia Commonwealth University	United States	SCImago #938 · THE 401–500 · QS 901-950	1
University of Geneva	Switzerland	SCImago #830 · THE =166 · QS =155	1
Massachusetts Institute of Technology	United States	SCImago #41 · THE 2 · QS 1	1
Imperial College London	United Kingdom	SCImago #69 · THE 8 · QS 2	1
Université de Lorraine	France	SCImago #1399 · QS 751-760	1
University of Michigan	United States	SCImago #43 · THE 23 · QS 45	1
Universidade de Lisboa	Portugal	SCImago #395 · THE 401–500 · QS =230	1
University of Southern California	United States	SCImago #192 · THE =73 · QS 146	1
University of Würzburg	Germany	THE 179	1
Humboldt-Universität zu Berlin	Germany	SCImago #816 · QS 130	1
Tohoku University	Japan	SCImago #656 · THE =103 · QS 109	1
University of Wuerzburg	Germany	—	1
University of Aveiro	Portugal	THE 601–800 · QS 419	1

Geographic distribution of citing authors

Country	Citing papers
United States	5
Germany	3
Portugal	2
Hungary	2
Switzerland	2
Japan	1
China	1
P. R. China	1
Russia	1
South Korea	1
France	1
United Kingdom	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	Kinetic phase transitions in an irreversible surface-reaction model	8	Dhanasar — Prong 2 (well-positioned)

Contribution	Core paper	Indep. cites	Supports
Contribution 2	Efficient Monte Carlo Algorithm and High-Precision Results for Percolation	4	Dhanasar — Prong 2 (well-positioned)
Contribution 3	Fast Monte Carlo algorithm for site or bond percolation	4	Dhanasar — Prong 2 (well-positioned)