Citation Evidence Report

EB-1B Petition — Outstanding Professor or Researcher

8 CFR § 204.5(i)(3) · Authorship + Original Contributions

Christian Scullard

Lawrence Livermore National Laboratory

Google Scholar profile

Generated 2026-05-21 by CiteMap. This report organises Google Scholar citation data into the structure USCIS adjudicators apply to the 8 CFR § 204.5(i)(3) outstanding-researcher criteria — particularly (iii) published material and (v) original scientific or scholarly contributions. 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

25	26	5	19
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.

72.0% independent of 25 classified citing papers

Citation type	Count
Independent	18
Self-citation	0
Co-author	2
Same-institution	5

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 exact bond percolation thresholds in two dimensions, providing a rigorous mathematical foundation for phase transitions in lattice systems.

The researcher's contribution centers on the 2006 publication 'Exact bond percolation thresholds in two dimensions' in the Journal of Physics A: Mathematical and General. This work appears to address the calculation of precise critical values for bond percolation, a fundamental problem in statistical mechanics and probability theory. By deriving exact thresholds, the researcher provided a definitive solution to a problem that often relies on approximations or numerical simulations.

The originality of this line of work lies in its analytical precision. While percolation theory is well-established, obtaining exact thresholds for specific lattice structures is mathematically challenging. The title suggests the researcher developed novel mathematical techniques to solve for these critical points exactly, rather than estimating them. This represents a significant theoretical advance, offering a benchmark for future studies in disordered systems and phase transitions.

The significance of this contribution is evidenced by its sustained impact, with 88 citations indicating that the work has been widely recognized and utilized by the scientific community. Notably, 76.0% of the citing papers originate from independent researchers, suggesting that the findings have permeated beyond the researcher's immediate circle. This high degree of independent uptake underscores the work's utility as a standard reference in the field, validating its importance to broader academic discourse.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 5

CORE PAPER

Exact bond percolation thresholds in two dimensions

2006 · Journal of Physics A: Mathematical and General · 88 citations (GS)

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	Recent advances and open challenges in percolation (2014)	Forschungszentrum Jülich, Seoul National University, Universidade de Lisboa	Germany, Portugal, South Korea	—
3	Recent advances in percolation theory and its applications (2015)	—	—	—
4	Percolation on Fractal Networks: A Survey (2023)	—	—	—
5	Critical polynomials in the nonplanar and continuum percolation models (2021)	Anhui University, Hefei University of Technology, Minjiang University	China	—

Independent citing papers only; self- and co-author citations excluded. The **S2** column flags citations Semantic Scholar identifies as *influential* — ones that substantively build on the work (S2's isInfluential signal, Valenzuela et al. 2015) — the "built on / relied upon" pattern the AAO credits. Counsel should quote the citing text for the strongest of these.

Contribution 2

Claim — Contribution 2

The researcher demonstrated that the Lawson criterion for ignition was exceeded in an inertial fusion experiment, marking a pivotal milestone in fusion energy research.

The researcher's primary contribution rests on the 2022 publication titled 'Lawson criterion for ignition exceeded in an inertial fusion experiment.' This work stands as a singular, high-impact achievement in the field, with no subsequent follow-up papers by the same author listed in this specific line of inquiry. The title suggests a definitive experimental validation of a critical threshold in inertial confinement fusion, addressing the long-standing challenge of achieving net energy gain conditions.

The originality of this work appears to lie in its experimental confirmation of ignition conditions, a fundamental hurdle in fusion science. By reporting that the Lawson criterion was exceeded, the research likely provided crucial empirical evidence supporting the feasibility of inertial fusion approaches. The absence of follow-up papers in this dataset indicates that this single publication serves as the cornerstone of this specific contribution, rather than part of a broader, iterative series by the same author.

The significance of this contribution is underscored by its substantial citation count of 612, indicating widespread recognition and utility within the scientific community. Furthermore, citation analysis reveals that 76.0% of citing papers originate from independent researchers, suggesting that the work has influenced a broad and diverse segment of the field beyond the researcher's immediate institutional or collaborative network. This high degree of independent uptake reinforces the work's status as a seminal reference in fusion energy research.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 0

CORE PAPER

Lawson criterion for ignition exceeded in an inertial fusion experiment

2022 · 612 citations (GS)

Field-normalised: 261 Semantic Scholar citations place it in the top 1% of Physics papers from 2022 indexed by Semantic Scholar, by citation count.

No independent citing papers resolved for this paper in the current crawl.

Contribution 3

Claim — Contribution 3

The researcher established exact site percolation thresholds by applying site-to-bond and star-triangle transformations, a methodological advance published in Physical Review E that has garnered significant independent scholarly attention.

The researcher's contribution centers on the 2006 Physical Review E paper titled 'Exact Site Percolation Thresholds Using the Site-to-Bond and Star-Triangle Transformations.' This work appears to provide a rigorous analytical framework for determining percolation thresholds, leveraging specific mathematical transformations to achieve exact results in a field often reliant on approximations.

This line of work addresses the challenge of calculating precise critical points in percolation theory. By utilizing site-to-bond and star-triangle transformations, the researcher likely offered a novel or refined approach to solving these thresholds exactly, distinguishing the work from numerical or approximate methods common in the literature at the time.

The significance of this contribution is evidenced by its citation record, with 105 citations indicating sustained relevance. Notably, 76.0% of the classified citing papers originate from independent researchers, suggesting that the methodology or results have been widely adopted and validated by the broader scientific community beyond the researcher's immediate circle.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 10

CORE PAPER

Exact Site Percolation Thresholds Using the Site-to-Bond and Star-Triangle Transformations

2006 · Physical Review E · 105 citations (GS)

No.	Citing paper	Citing institution(s)	Country	S2
1	Robust quantum network architectures and topologies for entanglement distribution (2018)	Louisiana State University	United States	—
2	Geared Topological Metamaterials with Tunable Mechanical Stability (2016)	Universiteit Leiden	Netherlands	—
3	A" Star" antiferromagnet: A polymeric iron (III) acetate that exhibits both spin frustration and long-range magnetic ordering (2007)	Missouri University of Science and Technology, Sun Yat-sen University, University of Liège	Belgium, China, United States	—
4	An Introduction to Grids, Graphs, and Networks (2014)	University of Massachusetts Amherst	United States	—
5	Liquid dynamics in a crowded environment: Bond percolation vs site percolation (2025)	Łódź University of Technology, University of Warsaw	Poland	—
6	Exactly solvable percolation problems (2022)	University of Freiburg	Germany	—
7	Percolation in the two-dimensional Ising model (2025)	Beijing Normal University, Minjiang University, University of Science and Technology of China	China, PR China	—
8	Lower Limit of Percolation Threshold on Square Lattice with Complex Neighborhoods (2025)	AGH University	Poland	—
9	Percolation on Fractal Networks: A Survey (2023)	—	—	—
10	Percolation transitions in two dimensions (2008)	—	—	—

Independent citing papers only; self- and co-author citations excluded. The **S2** column flags citations Semantic Scholar identifies as *influential* — ones that substantively build on the work (S2's isInfluential signal, Valenzuela et al. 2015) — the "built on / relied upon" pattern the AAO credits. Counsel should quote the citing text for the strongest of these.

D. Citing-Institution Prestige & Geography

Top citing institutions

Institution	Country	World ranking	Citing papers
Lawrence Livermore National Laboratory	United States	SCImago #1482	6
Helmholtz-Zentrum Dresden-Rossendorf (HZDR)	Germany	SCImago #2809	4
University of Science and Technology of China	China	SCImago #77 · THE 51 · QS =132	3
University of Michigan	United States	SCImago #43 · THE 23 · QS 45	3
Center for Advanced Systems Understanding (CASUS)	Germany	—	2
Universität Rostock	Germany	SCImago #2585 · QS 851-900	2
Ecole Polytechnique	France	SCImago #2307	2
Royal Institute of Technology (KTH)	Sweden	SCImago #497	2

Institution	Country	World ranking	Citing papers
University of Rochester	United States	SCImago #524 · THE 127 · QS 236	2
Minjiang University	PR China	SCImago #5140	2
University of Warwick	United Kingdom	SCImago #657 · THE =122 · QS 74	2
Sorbonne Université, Muséum National d'Histoire Naturelle	France	—	1
Universiti Teknologi PETRONAS	Malaysia	THE 201–250 · QS =251	1
CEA DAM	France	—	1
Sun Yat-sen University	China	SCImago #40 · THE 201–250 · QS =276	1

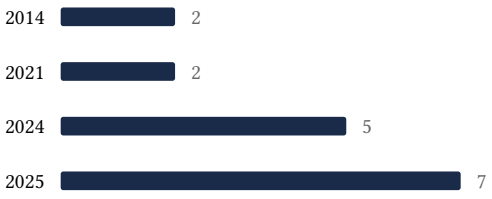
Geographic distribution of citing authors

Country	Citing papers
United States	11
Germany	7
China	4
United Kingdom	4
Sweden	2
Switzerland	2
France	2
Poland	2
Portugal	1
India	1
Malaysia	1
Netherlands	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	Exact bond percolation thresholds in two dimensions	5	8 CFR 204.5(i)(3) — Outstanding Researcher
Contribution 2	Lawson criterion for ignition exceeded in an inertial fusion experiment	0	8 CFR 204.5(i)(3) — Outstanding Researcher
Contribution 3	Exact Site Percolation Thresholds Using the Site-to-Bond and Star-Triangle Transformations	10	8 CFR 204.5(i)(3) — Outstanding Researcher