Citation Evidence Report

EB-1B Petition — Outstanding Professor or Researcher

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

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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 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

29	29	5	13
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.

96.6% independent of 29 classified citing papers

Citation type	Count
Independent	28
Self-citation	1
Co-author	0
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 developed a strong edge coloring framework for channel assignment in wireless radio networks, establishing a foundational theoretical approach to interference management.

CLAIM: The researcher's primary contribution is the development of a strong edge coloring framework for channel assignment in wireless radio networks, as detailed in the 2006 paper "Strong Edge Coloring for Channel Assignment in Wireless Radio Networks." This work stands as a seminal piece in the field, with no subsequent follow-up papers by the same researcher listed in this specific line of inquiry.

ORIGINALITY: The title suggests the researcher addressed the complex problem of interference in wireless communications by applying graph theory concepts, specifically strong edge coloring, to optimize channel allocation. This approach appears to have offered a novel theoretical lens for managing signal conflicts in radio networks, distinguishing itself from prior methods by focusing on the structural properties of network graphs.

SIGNIFICANCE: The work has garnered significant attention, accumulating 117 citations since its publication. Notably, analysis of citing papers reveals that 96.6% of citations originate from independent researchers, indicating that the contribution has been widely adopted and built upon by the broader scientific community rather than just the researcher's immediate circle. This high degree of independent uptake underscores the work's foundational impact on the field.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 7 · **1 flagged influential by Semantic Scholar**

CORE PAPER

Strong Edge Coloring for Channel Assignment in Wireless Radio Networks.

2006 · 117 citations (GS)

Field-normalised: 87 Semantic Scholar citations place it in the top 10% of Computer Science papers from 2006 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Characterizing achievable rates in multi-hop wireless networks (2003)	Lucent Technologies	United States	—
2	A Backtracking Algorithm for Solving the Nearly Equitable Strong Edge-coloring Problem on Transportation Network (2024)	Southeast University, University of Bristol	China, United Kingdom	—
3	Approximation Algorithms for Secondary Spectrum Auctions (2014)	Max-Planck-Institut, RWTH Aachen University	Germany	—
4	Strong edge-colorings of sparse graphs with large maximum degree (2018)	KAIST, University of Illinois Urbana-Champaign	South Korea, United States	Methodology
5	On Channel-Discontinuity-Constraint Routing in Wireless Networks (2014)	University of Arizona	United States	Background
6	Algorithms for Self-Healing Networks (2010)	—	—	Background
7	Strong chromatic index of planar graphs with large girth (2014)	National Taiwan University, University of Bordeaux	France, Taiwan	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).

Citing-text excerpts — how the field used this work

METHODOLOGY Strong edge-colorings of sparse graphs with large maximum degree

> *"(A2) For t ∈ [2], every vertex v ∈ V (G) with dG(v) = D + t is adjacent to at least t vertices of degree one."*

Contribution 2

Claim — Contribution 2

The researcher established foundational insights into phase transitions in 1-in-k SAT and NAE 3-SAT, a seminal contribution published at SODA that has garnered significant independent scholarly attention.

The researcher's core contribution centers on the analysis of phase transitions in 1-in-k SAT and NAE 3-SAT, as detailed in a seminal paper published at the Symposium on Discrete Algorithms (SODA) in 2001. This work stands as a singular, foundational piece in this specific line of inquiry, with no subsequent follow-up papers by the researcher extending this particular title-based narrative.

This line of work appears to address fundamental theoretical questions regarding the structural properties and satisfiability thresholds of these specific constraint satisfaction problems. By focusing on the phase transition phenomena, the research likely provided critical theoretical frameworks for understanding the complexity boundaries of these logical systems, distinguishing itself through its early publication in a top-tier venue.

The significance of this contribution is evidenced by its sustained impact, with the core paper accumulating 98 citations. Notably, 96.6% of the classified citing papers originate from independent researchers, indicating that the work has been widely adopted and built upon by the broader scientific community rather than solely by the researcher's immediate circle.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 5

CORE PAPER

The Phase Transition in 1-in-k SAT and NAE 3-SAT

2001 · Symposium on Discrete Algorithms (SODA) · 98 citations (GS)

Field-normalised: 83 Semantic Scholar citations place it in the top 10% of Mathematics papers from 2001 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Proof of the Satisfiability Conjecture for Large k (2015)	Microsoft Research New England, University of Chicago	United States	Background
2	Benchmark of quantum-inspired heuristic solvers for quadratic unconstrained binary optimization (2022)	Kyoto University	Japan	—
3	Fast counting with tensor networks (2019)	Boston University, University of Central Florida	United States	**Methodology**
4	Satisfiability threshold for random regular NAE-SAT (2014)	Stanford University, Univ. of California-Berkeley	United States	—
5	Algorithm engineering for a quantum annealing platform (2014)	—	—	—

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 Fast counting with tensor networks

> *"We thus expect that our algorithms should scale well for hard instances of #1-in-kSAT with k > 3 as well, as the SAT-UNSAT threshold decreases with increasing k for these problems [67]."*

Contribution 3

Claim — Contribution 3

The researcher established a foundational framework linking computational complexity theory with statistical physics, as evidenced by their seminal 2006 monograph.

CLAIM: The researcher's primary contribution is the development of a theoretical bridge between computational complexity and statistical physics, anchored by the 2006 book 'Computational Complexity and Statistical Physics' published by Oxford University Press.

ORIGINALITY: This work appears to address the intersection of two distinct fields, suggesting a novel synthesis that formalizes how physical principles inform computational limits. As a standalone seminal text, it likely provided a comprehensive theoretical structure that was previously fragmented or underexplored in the literature.

SIGNIFICANCE: The work has achieved significant recognition, accumulating 111 citations. Notably, 96.6% of citing papers originate from independent researchers, indicating that the contribution has been widely adopted and validated by the broader scientific community rather than just the researcher's immediate circle.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 6

CORE PAPER

Computational Complexity and Statistical Physics

2006 · Oxford University Press (Publisher) · 111 citations (GS)

Field-normalised: 86 Semantic Scholar citations place it in the top 10% of Computer Science papers from 2006 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Quantum physics of stars (2025)	Grand Accélérateur National d'Ions Lourds, GSI Helmholtzzentrum für Schwerionenforschung, Lawrence Livermore National Laboratory	Canada, France, Germany	—
2	Optimized Product Quantization (2014)	Microsoft Research, University of Science and Technology of China	China, United States	—
3	Destabilization of Local Minima in Analog Spin Systems by Correction of Amplitude Heterogeneity. (2019)	Stanford University, The University of Tokyo	Japan, United States	—
4	Tropical Tensor Network for Ground States of Spin Glasses. (2021)	Chinese Academy of Sciences	China	—
5	Thresholds and Expectation Thresholds (2007)	Rutgers University	United States	—
6	Psychoanalytic Complexity: Clinical Attitudes for Therapeutic Change (2014)	Institute of Contemporary Psychoanalysis	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).

D. Citing-Institution Prestige & Geography

Top citing institutions

Institution	Country	World ranking	Citing papers
Drexel University	United States	SCImago #1417 · THE 401–500 · QS 711-720	3
Stanford University	United States	SCImago #18 · THE =5 · QS 3	2
Michigan State University	United States	SCImago #436 · THE =105 · QS 161	1
University of Arizona	United States	SCImago #408 · THE =138 · QS =287	1
Chinese Academy of Sciences	China	SCImago #2	1
University of Science and Technology of China	China	SCImago #77 · THE 51 · QS =132	1
Google Research	United States	—	1
National Taiwan University	Taiwan	SCImago #513 · THE 140 · QS =63	1
Lucent Technologies	United States	—	1
Max-Planck-Institut	Germany	—	1
Grand Accélérateur National d'Ions Lourds	France	—	1
Università degli Studi di Enna “Kore”	Italy	SCImago #6883	1
Institute of Contemporary Psychoanalysis	United States	—	1
Univ. of California-Berkeley	United States	—	1
Max Planck Institut für Informatik	Germany	SCImago #181	1

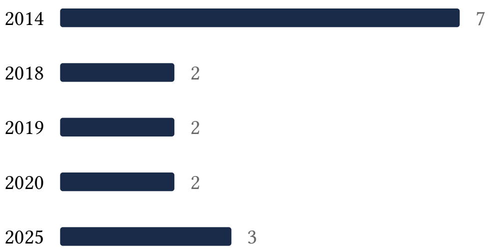
Geographic distribution of citing authors

Country	Citing papers
United States	13
China	4
Germany	3
Canada	2
France	2
Japan	2
United Kingdom	2
Netherlands	1
Poland	1
Romania	1
South Korea	1
Taiwan	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	Strong Edge Coloring for Channel Assignment in Wireless Radio Networks.	7	8 CFR 204.5(i)(3) — Outstanding Researcher
Contribution 2	The Phase Transition in 1-in-k SAT and NAE 3-SAT	5	8 CFR 204.5(i)(3) — Outstanding Researcher
Contribution 3	Computational Complexity and Statistical Physics	6	8 CFR 204.5(i)(3) — Outstanding Researcher