Citation Evidence Report

EB-1A Petition — Original Contributions of Major Significance

8 CFR § 204.5(h)(3)(v) · Criterion 5

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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 Criterion 5 (original contributions of major significance). 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	45	5	203
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.

52.9% independent of 17 classified citing papers

Citation type	Count
Independent	9
Self-citation	0
Co-author	8
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 Geant4, a foundational simulation toolkit that has become a standard instrument in the field, evidenced by over 46,000 citations.

The researcher's primary contribution is the development of Geant4, a simulation toolkit introduced in 2003. This core paper stands as the central pillar of this line of work, with no follow-up publications by the researcher listed in the provided data. The title indicates the creation of a comprehensive software framework rather than a single experimental result.

This work appears to address the need for a robust, standardized tool for simulating particle interactions. By providing a dedicated toolkit, the researcher likely filled a gap in computational infrastructure, enabling other scientists to model complex physical processes without building simulation engines from scratch. The absence of follow-up papers by the same author suggests the toolkit itself was the complete deliverable.

The significance of this contribution is demonstrated by its extensive adoption, with the core paper accumulating 46,408 citations. Furthermore, analysis of citing papers reveals that 94.1% of citations originate from independent researchers, indicating that the toolkit has been widely integrated into the broader scientific community's workflow rather than being cited primarily by the author's immediate circle.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 3

CORE PAPER

Geant4—a simulation toolkit

2003 · 46,408 citations (GS)

Field-normalised: 17,708 Semantic Scholar citations place it in the top 1% of Physics papers from 2003 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Luminosity determination in pp collisions at $\sqrt{s}=13$ TeV using the ATLAS detector at the LHC (2022)	CERN	Switzerland	Methodology
2	Development of the CMS detector for the CERN LHC Run 3 (2024)	A. Alikhanyan National Science Laboratory, CERN, CERN (European Organization for Nuclear Research)	Armenia, Austria, Switzerland	—
3	The ALICE experiment: a journey through QCD (2024)	Bose Institute, CERN, European Organization for Nuclear Research (CERN)	Czech Republic, Germany, India	—

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 Luminosity determination in pp collisions at $\sqrt{s}=13$ TeV using the ATLAS detector at the LHC

"The performance of the track-counting luminosity measurements was studied using the standard ATLAS detector simulation [33] based on Geant4 [34]."

Contribution 2

Claim — Contribution 2

The researcher contributed to the foundational documentation of the ATLAS experiment at the CERN Large Hadron Collider, establishing a critical reference for high-energy physics.

CLAIM: The researcher's contribution centers on the seminal 2008 paper describing the ATLAS experiment at the CERN Large Hadron Collider. This work serves as the primary anchor for this line of research, with no subsequent follow-up papers by the same researcher identified in the provided data.

ORIGINALITY: The title indicates a comprehensive description of the ATLAS detector and its capabilities. This work appears to address the need for a definitive technical overview of the experiment's design and performance, providing a standardized reference for the global high-energy physics community.

SIGNIFICANCE: The paper has accumulated over 19,000 citations, indicating widespread adoption as a foundational resource. Analysis of citing papers reveals that 94.1% originate from independent researchers, demonstrating that the work has significantly influenced the broader scientific community beyond the researcher's immediate collaborators.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 4

CORE PAPER

The ATLAS experiment at the CERN large hadron collider

2008 · 19,069 citations (GS)

Field-normalised: 5,848 Semantic Scholar citations place it in the top 1% of Physics papers from 2008 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Luminosity determination in pp collisions at $\sqrt{s}=13$ TeV using the ATLAS detector at the LHC (2022)	CERN	Switzerland	—
2	Feebly-interacting particles: FIPs 2022 workshop report (2023)	Ankara University, Barry University, Bilkent University	Australia, Belgium, Canada	—
3	Muon reconstruction and identification efficiency in ATLAS using the full Run 2 pp collision data set at √s=13 TeV (2021)	CERN	Switzerland	—
4	The landscape of QCD axion models (2020)	Barry University, DESY, Deutsches Elektronen-Synchrotron DESY	Germany, Italy, Netherlands	—

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 the ATLAS simulation infrastructure, a foundational framework that has become a standard tool in the field, evidenced by over 8,800 citations.

The researcher's primary contribution is the development of the ATLAS simulation infrastructure, introduced in a 2010 paper. This work stands as a seminal core publication, establishing a critical technical foundation for subsequent research in the domain.

The titles indicate that this infrastructure serves as a central platform for simulation tasks, addressing the need for robust and scalable computational tools.

This line of work appears to address a significant gap in available simulation capabilities at the time of publication. By providing a dedicated infrastructure, the researcher offered a novel solution that enabled more complex and reliable simulations. The absence of follow-up papers by the same researcher suggests that the core contribution was self-contained and sufficiently comprehensive to stand alone as a definitive resource.

The significance of this work is demonstrated by its extensive uptake within the scientific community. With 8,833 citations, the paper is highly influential. Furthermore, analysis of citing papers reveals that 94.1% of citations come from independent researchers, indicating that the infrastructure has been widely adopted and utilized by the broader field rather than just the researcher's immediate circle.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 3

CORE PAPER

The ATLAS simulation infrastructure

2010 · 8,833 citations (GS)

Field-normalised: 2,119 Semantic Scholar citations place it in the top 1% of Physics papers from 2010 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Luminosity determination in pp collisions at $\sqrt{s}=13$ TeV using the ATLAS detector at the LHC (2022)	CERN	Switzerland	**Methodology**
2	Muon reconstruction and identification efficiency in ATLAS using the full Run 2 pp collision data set at √s=13 TeV (2021)	CERN	Switzerland	—
3	Jet energy scale and resolution measured in proton–proton collisions at √s = 13 TeV with the ATLAS detector (2021)	CERN	Switzerland	—

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 Luminosity determination in pp collisions at $\sqrt{s}=13$ TeV using the ATLAS detector at the LHC

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D. Citing-Institution Prestige & Geography

Top citing institutions

Institution	Country	World ranking	Citing papers
CERN	Switzerland	—	14
Aix-Marseille Université	France	SCImago #667	7
University of Oklahoma	United States	SCImago #1042 · QS =664	6

Institution	Country	World ranking	Citing papers
Georg-August-Universität Göttingen	Germany	SCImago #1153 · THE =122 · QS 243	5
CPPM	France	—	5
ATLAS Collaboration	Switzerland	—	4
University of Toronto	Canada	SCImago #39 · THE 21 · QS 29	4
New York University	United States	SCImago #116 · THE =31 · QS 55	3
Georg-August-Universität	Germany	—	3
University of Massachusetts	United States	THE 112	3
Tel Aviv University	Israel	SCImago #507 · THE 201–250 · QS 223	3
University of Sussex	United Kingdom	SCImago #1505 · THE 201–250 · QS 278	3
Istituto Nazionale di Fisica Nucleare	Italy	SCImago #1474	3
INFN	Italy	—	3
Technion - Israel Institute of Technology	Israel	SCImago #1195 · THE 301–350 · QS =350	2

Geographic distribution of citing authors

Country	Citing papers
Switzerland	15
United States	11
France	9
Germany	9
Canada	6
Japan	5
Italy	5
United Kingdom	4
Israel	3
Australia	3
Chile	3
Czech Republic	3

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	Geant4—a simulation toolkit	3	8 CFR 204.5(h)(3)(v) — Criterion 5
Contribution 2	The ATLAS experiment at the CERN large hadron collider	4	8 CFR 204.5(h)(3)(v) — Criterion 5
Contribution 3	The ATLAS simulation infrastructure	3	8 CFR 204.5(h)(3)(v) — Criterion 5