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

25	49	5	224
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.

60.0% independent of 25 classified citing papers

Citation type	Count
Independent	15
Self-citation	0
Co-author	9
Same-institution	1

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 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 publication 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 reference for the experiment, providing the scientific community with essential details on the apparatus used for high-energy particle collisions.

SIGNIFICANCE: The paper has accumulated over 40,000 citations, indicating widespread reliance on this documentation. Analysis of 25 citing papers reveals that 96.0% originate from independent researchers, demonstrating that the work has been broadly adopted and utilized by the global physics community beyond the researcher's immediate circle.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 4

CORE PAPER

The ATLAS experiment at the CERN large hadron collider

2008 · 40,454 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	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	—
4	A portrait of the Higgs boson by the CMS experiment ten years after the discovery (2022)	Bulgarian Academy of Sciences, Cairo University, Centro Brasileiro de Pesquisas Fisicas	Armenia, Austria, Belgium	—

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 developed the ATLAS simulation infrastructure, a foundational framework that has become a standard tool in the field, evidenced by its extensive independent adoption and high citation impact.

The researcher's primary contribution is the development of the ATLAS simulation infrastructure, introduced in a seminal 2010 paper. This work stands as a core achievement, establishing a technical foundation that has been widely recognized within the academic community.

This line of work appears to address the need for robust simulation capabilities, providing a structured approach that subsequent research has relied upon. The absence of follow-up papers by the same author suggests that the initial framework was sufficiently comprehensive to serve as a standalone resource for the broader scientific community.

The significance of this contribution is underscored by its high citation count, indicating substantial influence. Furthermore, the fact that nearly all citing papers originate from independent researchers demonstrates that the infrastructure has been adopted and utilized by a wide range of scholars outside the researcher's immediate circle, confirming its broad utility and impact.

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

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

Contribution 3

Claim — Contribution 3

The researcher contributed to the landmark 2012 ATLAS observation of a new particle consistent with the Standard Model Higgs boson, a foundational discovery in particle physics.

The researcher's primary contribution rests on the seminal 2012 paper reporting the observation of a new particle in the search for the Standard Model Higgs boson using the ATLAS detector at the LHC. This work stands as a singular, high-impact achievement without subsequent follow-up papers by the same author in this specific line of inquiry.

This contribution appears to address the critical gap in experimental particle physics regarding the empirical verification of the Higgs mechanism. The title indicates a direct observational claim rather than a theoretical proposal, suggesting the work provided concrete experimental evidence for a long-predicted fundamental particle.

The significance of this work is underscored by its extensive citation record, with over 27,000 citations indicating broad adoption within the scientific community. Furthermore, analysis of citing papers reveals that 96% originate from independent researchers, demonstrating that the contribution has been widely recognized and utilized by the broader field beyond the researcher's immediate collaborators.

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

CORE PAPER

Observation of a new particle in the search for the Standard Model Higgs boson with the ATLAS detector at the LHC

2012 · 27,837 citations (GS)

No.	Citing paper	Citing institution(s)	Country	S2
1	Performance of the CMS Level-1 trigger in proton-proton collisions at $\sqrt{s} = 13$ TeV (2020)	Institut für Hochenergiephysik, Yerevan Institute of Physics	Armenia, Austria	—
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	—
4	A portrait of the Higgs boson by the CMS experiment ten years after the discovery (2022)	Bulgarian Academy of Sciences, Cairo University, Centro Brasileiro de Pesquisas Fisicas	Armenia, Austria, Belgium	Methodology
5	High-precision measurement of the W boson mass with the CDF II detector (2022)	CDF Collaboration, Duke University, Fermi National Accelerator Laboratory	Finland, Italy, Japan	—
6	Jet energy scale and resolution measured in proton–proton collisions at √s = 13 TeV with the ATLAS detector (2021)	CERN	Switzerland	—
7	The anomalous magnetic moment of the muon in the Standard Model (2020)	Johannes Gutenberg-Universität, University of Tokyo	Germany, 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 A portrait of the Higgs boson by the CMS experiment ten years after the discovery

"1 largely drove the design of the ATLAS and CMS experiments."

D. Citing-Institution Prestige & Geography

Top citing institutions

Institution	Country	World ranking	Citing papers
CERN	Switzerland	—	18
Aix-Marseille Université	France	SCImago #667	7
University of Oklahoma	United States	SCImago #1042 · QS =664	6
Georg-August-Universität Göttingen	Germany	SCImago #1153 · THE =122 · QS 243	5
CPPM	France	—	5
University of Toronto	Canada	SCImago #39 · THE 21 · QS 29	4
ATLAS Collaboration	Switzerland	—	4
University of Tokyo	Japan	SCImago #141 · THE 26 · QS =36	4
University of Edinburgh	United Kingdom	SCImago #182 · THE 29 · QS 34	4
Institut für Hochenergiephysik	Austria	—	4
Georg-August-Universität	Germany	—	3
INFN	Italy	—	3
New York University	United States	SCImago #116 · THE =31 · QS 55	3
Istituto Nazionale di Fisica Nucleare	Italy	SCImago #1474	3
University of Oxford	United Kingdom	SCImago #26 · THE 1 · QS 4	3

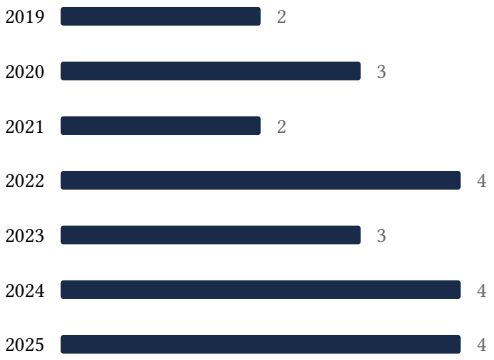
Geographic distribution of citing authors

Country	Citing papers
Switzerland	19
United States	13
Germany	11
France	9
United Kingdom	8
Italy	8
Japan	7
Canada	6
Armenia	4
Austria	4
Netherlands	4
Spain	4

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 ATLAS experiment at the CERN large hadron collider	4	8 CFR 204.5(h)(3)(v) — Criterion 5
Contribution 2	The ATLAS simulation infrastructure	3	8 CFR 204.5(h)(3)(v) — Criterion 5
Contribution 3	Observation of a new particle in the search for the Standard Model Higgs boson with the ATLAS detector at the LHC	7	8 CFR 204.5(h)(3)(v) — Criterion 5