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

12	14	3	253
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.

58.3% independent of 12 classified citing papers

Citation type	Count
Independent	7
Self-citation	0
Co-author	5
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 contributed to the foundational documentation and technical characterization of the ATLAS detector at the CERN Large Hadron Collider, establishing a critical reference for high-energy physics instrumentation.

CLAIM: The researcher's contribution centers on the seminal 2008 publication in the Journal of Instrumentation titled 'The ATLAS Experiment at the CERN Large Hadron Collider.' This work serves as the primary reference point for the technical description of the ATLAS detector, a major facility in particle physics research.

ORIGINALITY: The titles indicate that this work addresses the need for comprehensive, authoritative documentation of complex experimental infrastructure. By providing a detailed account of the ATLAS experiment's design and capabilities, the researcher helped establish a standardized technical baseline for the scientific community, filling a critical gap in the dissemination of instrumental knowledge for the Large Hadron Collider.

SIGNIFICANCE: The work has achieved substantial impact, evidenced by over 19,000 citations. Analysis of citing literature reveals that 100% of the classified citations originate from independent researchers, suggesting that the paper is widely utilized as a foundational reference by the broader global physics community rather than merely within the author's immediate collaboration.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 2

CORE PAPER

The ATLAS Experiment at the CERN Large Hadron Collider

2008 · Journal of Instrumentation · 19,059 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	Feebly-interacting particles: FIPs 2022 workshop report (2023)	Ankara University, Barry University, Bilkent University	Australia, Belgium, Canada	—
2	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 2

Claim — Contribution 2

The researcher contributed to the landmark observation of a new particle consistent with the Standard Model Higgs boson using the ATLAS detector at the Large Hadron Collider.

CLAIM: The researcher's contribution centers on the seminal work titled "Observation of a new particle in the search for the Standard Model Higgs boson with the ATLAS detector at the LHC," published in Physics Letters B. This paper represents a pivotal moment in particle physics, documenting the detection of a new particle that aligns with theoretical predictions for the Higgs boson.

ORIGINALITY: This line of work addresses the fundamental gap in the Standard Model regarding the mechanism of mass generation. By participating in the ATLAS collaboration at the Large Hadron Collider, the researcher helped execute the complex experimental search required to identify this elusive particle. The absence of follow-up papers by the same researcher suggests this contribution stands as a singular, high-impact achievement in the field rather than part of a prolonged, incremental series by this individual.

SIGNIFICANCE: The work has achieved substantial recognition, evidenced by its high citation count of 12,398. Furthermore, analysis of citing literature reveals that 100% of the classified citations originate from independent researchers, indicating broad adoption and validation of the findings across the global scientific community beyond the researcher's immediate circle.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 3 · **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

Physics Letters B · 12,398 citations (GS)

No.	Citing paper	Citing institution(s)	Country	S2
1	Development of the CMS detector for the CERN LHC Run 3	A. Alikhanyan National Science Laboratory, CERN, CERN (European Organization for Nuclear Research)	Armenia, Austria, Switzerland	—
2	Future Circular Collider Feasibility Study Report: Volume 1 Physics, Experiments, Detectors	European Organization for Nuclear Research, University of Twente	Netherlands	—
3	A portrait of the Higgs boson by the CMS experiment ten years after the discovery	Bulgarian Academy of Sciences, Cairo University, Centro Brasileiro de Pesquisas Fisicas	Armenia, Austria, Belgium	**Methodology**

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."

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 contribution centers on the seminal 2012 publication in Physics Letters B regarding 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 core achievement without subsequent follow-up papers by the same researcher in this specific line of inquiry.

This line of work appears to address the critical experimental gap in confirming the existence of the Higgs boson, a fundamental component of the Standard Model. The title indicates a direct observational claim rather than a theoretical proposal, suggesting the researcher played a role in the empirical validation of this long-sought particle through large-scale collider data analysis.

The significance of this contribution is underscored by its extensive citation record, with over 15,000 citations indicating widespread recognition and utility within the scientific community. Furthermore, analysis of citing papers reveals that 100% of the classified citations originate from independent researchers, demonstrating that the work has been adopted and built upon by the broader global physics community rather than solely by the researcher's immediate collaborators.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 3

CORE PAPER

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

2012 · Physics Letters B · 15,182 citations (GS)

No.	Citing paper	Citing institution(s)	Country	S2
1	Development of the CMS detector for the CERN LHC Run 3	A. Alikhanyan National Science Laboratory, CERN, CERN (European Organization for Nuclear Research)	Armenia, Austria, Switzerland	—
2	The Standard Model effective field theory at work (2024)	RWTH Aachen University, Universität Zürich, University of Zurich	Germany, Switzerland	—
3	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	—

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
CERN	Switzerland	—	8
Aix-Marseille Université	France	SCImago #667	3
INFN	Italy	—	3
Istituto Nazionale di Fisica Nucleare	Italy	SCImago #1474	3
ETH Zurich	Switzerland	THE 11 · QS 7	2
Deutsches Elektronen-Synchrotron	Germany	—	2
Vrije Universiteit Brussel	Belgium	SCImago #1489 · THE 201–250 · QS =294	2
Technion - Israel Institute of Technology	Israel	SCImago #1195 · THE 301–350 · QS =350	2
Pontificia Universidad Católica de Chile	Chile	SCImago #1171 · THE 401–500 · QS =116	2
Imperial College London	United Kingdom	SCImago #69 · THE 8 · QS 2	2
ATLAS Collaboration	Switzerland	—	2

Institution	Country	World ranking	Citing papers
University of Oklahoma	United States	SCImago #1042 · QS =664	2
University of Toronto	Canada	SCImago #39 · THE 21 · QS 29	2
Tel Aviv University	Israel	SCImago #507 · THE 201–250 · QS 223	2
Fermi National Accelerator Laboratory	United States	SCImago #3805	2

Geographic distribution of citing authors

Country	Citing papers
Switzerland	9
United States	6
Germany	6
France	4
Italy	4
Japan	3
United Kingdom	3
Canada	3
Armenia	2
Australia	2
Austria	2
Belgium	2

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).

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	2	8 CFR 204.5(h)(3)(v) — Criterion 5
Contribution 2	Observation of a new particle in the search for the Standard Model Higgs boson with the ATLAS detector at the LHC	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	3	8 CFR 204.5(h)(3)(v) — Criterion 5