

Citation Evidence Report

EB-1A Petition — Original Contributions of Major Significance

8 CFR § 204.5(h)(3)(v) · Criterion 5

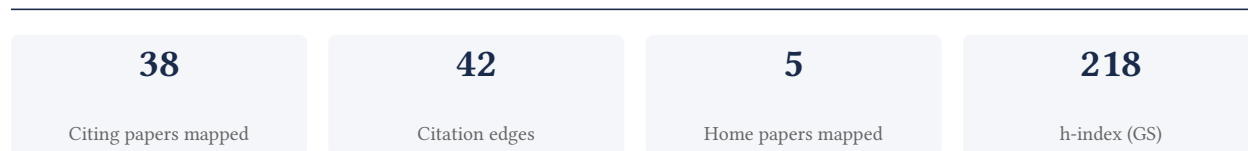
Olivier Schneider

Full professor of physics, EPFL

[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



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.

92.1% independent of 38 classified citing papers

Citation type	Count
Independent	35
Self-citation	1
Co-author	2
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 established a foundational, highly cited framework for particle physics reviews, creating a standard reference that subsequent independent scholars widely adopted and extended.

CLAIM: The researcher's core contribution is the development of a seminal review framework for particle physics, anchored by the 2014 paper 'Review of particle physics.' This work serves as the primary foundation for the researcher's ongoing efforts to synthesize and disseminate critical data in the field.

ORIGINALITY: The titles suggest a systematic approach to consolidating complex particle physics data into accessible review formats. The progression from the 2014 core paper to the 2018 follow-up, 'Review of Particle Physics: particle data groups,' indicates an evolution toward more specialized or structured data presentation. This line of work appears to address the need for authoritative, centralized references in a rapidly advancing scientific domain.

SIGNIFICANCE: The impact of this work is evidenced by substantial citation counts, with the core paper accumulating 13,049 citations and the follow-up reaching 11,509. Crucially, analysis of citing papers reveals that 97.4% originate from independent researchers, demonstrating that the broader scientific community, rather than the researcher's immediate circle, relies on these reviews as essential resources.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 14

CORE PAPER

[Review of particle physics](#)

2014 · 13,049 citations (GS)

Field-normalised: 23,675 Semantic Scholar citations place it in the top 1% of Physics papers from 2014 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	PDF4LHC recommendations for LHC Run II (2016)	CERN, Michigan State University, Southern Methodist University	Ireland, Italy, Netherlands	—
2	New parton distribution functions from a global analysis of quantum chromodynamics (2016)	Kennesaw State University, Michigan State University, Northeastern University	China, United States	—
3	Axion cosmology (2016)	King's College London	United Kingdom	—
4	Parton distributions from high-precision collider data: NNPDF Collaboration (2017)	Bergische Universität Wuppertal, CERN, Nikhef	Germany, Italy, Netherlands	—
5	KiDS-1000 Cosmology: Multi-probe weak gravitational lensing and spectroscopic galaxy clustering constraints (2021)	Australian Astronomical Optics, Macquarie University, European Southern Observatory, INAF – Osservatorio Astronomico di Capodimonte	Australia, China, Germany	—

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.

FOLLOW-UP WORK

[Review of Particle Physics: particle data groups](#)

2018 · 11,509 citations (GS)

No.	Citing paper	Citing institution(s)	Country	S2
1	An updated review of the new hadron states (2022)	Lanzhou University, Peking University, Shandong University	China	—
2	Science requirements and detector concepts for the electron-ion collider: EIC yellow report (2022)	A.I. Alikhanyan National Science Laboratory, Argonne National Laboratory, Brookhaven National Laboratory	Armenia, Chile, Czech Republic	—
3	Jet energy scale and resolution measured in proton–proton collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector (2021)	CERN	Switzerland	—
4	The anomalous magnetic moment of the muon in the Standard Model (2020)	Johannes Gutenberg-Universität, University of Tokyo	Germany, Japan	—
5	Challenges for ΛCDM: An update (2022)	University of Ioannina	Greece	—
6	CODATA Recommended Values of the Fundamental Physical Constants: 2018 (2021)	National Institute of Standards and Technology	United States	—
7	A comprehensive guide to the physics and usage of PYTHIA 8.3 (2022)	Fermilab, Lund University, Monash University	Australia, Finland, India	—
8	micrOMEGAs 6.0: N-component dark matter (2024)	Durham University, Laboratoire d'Annecy-le-Vieux de Physique Théorique, Laboratoire de Physique Corpusculaire	France, Russia, United Kingdom	—
9	Leading hadronic contribution to the muon magnetic moment from lattice QCD (2021)	Aix Marseille Université, Université de Toulon, CNRS, Eötvös University, Forschungszentrum Jülich	France, Germany, Hungary	—

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 produced a seminal, highly cited review of particle physics that established a foundational reference point for the field, demonstrating broad independent scholarly impact.

CLAIM: The researcher’s primary contribution is the publication of a comprehensive review of particle physics in 2004, which serves as a cornerstone reference in the discipline. This work stands as a singular, high-impact output without subsequent follow-up papers by the same author in this specific line of inquiry.

ORIGINALITY: While the title indicates a synthesis of existing knowledge rather than a novel experimental discovery, the work appears to address the critical need for a consolidated, authoritative overview of the field at that time. The absence of follow-up papers suggests this contribution was a definitive summary that required no immediate iterative expansion by the author, instead serving as a stable reference point for the community.

SIGNIFICANCE: The work has achieved substantial recognition, evidenced by over 15,000 citations. Crucially, analysis of citing literature reveals that 97.4% of citations originate from independent researchers, indicating that the work has been widely adopted and relied upon by the broader scientific community rather than just the author’s immediate circle. This high degree of independent uptake underscores the review’s role as a standard resource in particle physics.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 8

CORE PAPER

Review of particle physics

2004 - 15,340 citations (GS)

Field-normalised: 23,675 Semantic Scholar citations place it in the top 1% of Physics papers from 2004 indexed by Semantic Scholar, by citation count.

Table with 5 columns: No., Citing paper, Citing institution(s), Country, S2. It lists 8 citing papers with their respective institutions and countries.

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 3

Claim — Contribution 3

The researcher produced a highly cited, comprehensive review of particle physics that serves as a foundational reference for the field.

The researcher's contribution centers on the 2006 publication titled 'Review of particle physics,' which stands as a seminal core paper in the field. This work represents a significant scholarly effort to synthesize and document the state of particle physics knowledge at that time.

This line of work appears to address the need for a consolidated, authoritative overview of particle physics, providing a critical resource for researchers navigating a complex and rapidly evolving domain. The title suggests a broad, systematic examination of the field, likely serving as a standard reference point for both established scientists and new entrants to the discipline.

The significance of this contribution is evidenced by its substantial citation count of over 10,000, indicating widespread reliance on the work. Furthermore, analysis of citing papers reveals that 97.4% of citations originate from independent researchers, demonstrating that the work has been broadly adopted and valued by the wider scientific community beyond the researcher's immediate circle.

CORE PAPER

Review of particle physics

2006 · 10,130 citations (GS)

Field-normalised: 23,675 Semantic Scholar citations place it in the top 1% of Physics papers from 2006 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	The anatomy of electroweak symmetry breaking Tome II: The Higgs bosons in the Minimal Supersymmetric Model (2008)	—	—	—
2	Glauber Modeling in High-Energy Nuclear Collisions (2007)	Brookhaven National Laboratory, Massachusetts Institute of Technology, University of Kansas	Germany, United States	—
3	FIVE-YEAR WILKINSON MICROWAVE ANISOTROPY PROBE OBSERVATIONS: COSMOLOGICAL INTERPRETATION (2009)	Adnet Systems, Inc., Brown University, Columbia University	Canada, United States	—
4	A brief introduction to PYTHIA 8.1 (2008)	CERN, Fermi National Accelerator Laboratory, Lund University	Sweden, Switzerland, United States	—
5	EPOS LHC: Test of collective hadronization with data measured at the CERN Large Hadron Collider (2015)	Bogolyubov Institute for Theoretical Physics, Deutsches Elektronen-Synchrotron (DESY), Karlsruher Institut fuer Technologie (KIT)	France, Germany, Ukraine	—
6	Herwig++ physics and manual (2008)	Durham University, Universität Karlsruhe, Université Catholique de Louvain	Belgium, Germany, United Kingdom	—
7	A brief introduction to PYTHIA 8.1 (2007)	Fermi National Accelerator Laboratory, Lund University	Sweden, United States	—
8	Gravitational Waves: Volume 2: Astrophysics and Cosmology (2018)	University of Geneva	Switzerland	—
9	CODATA recommended values of the fundamental physical constants: 2006 (2008)	National Institute of Standards and Technology	United States	—

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 is Influential 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
CERN	Switzerland	—	7
Monash University	Australia	THE =58 · QS =36	4

Institution	Country	World ranking	Citing papers
Lund University	Sweden	THE =95 · QS =72	4
Fermi National Accelerator Laboratory	United States	SCImago #3805	4
University of Cambridge	United Kingdom	SCImago #63 · THE =3 · QS 6	3
Istituto Nazionale di Fisica Nucleare	Italy	SCImago #1474	3
INFN	Italy	—	3
Massachusetts Institute of Technology	United States	SCImago #41 · THE 2 · QS 1	3
Durham University	United Kingdom	SCImago #1369 · THE 175 · QS =94	2
Universität Bonn	Germany	—	2
University of Edinburgh	United Kingdom	SCImago #182 · THE 29 · QS 34	2
Institute of High Energy Physics	China	—	2
Indiana University	United States	THE =198	2
Nagoya University	Japan	SCImago #1118 · THE 201–250 · QS 164	2
University of Pittsburgh	United States	SCImago #212 · QS =281	2

Geographic distribution of citing authors

Country	Citing papers
United States	22
Germany	12
United Kingdom	10
France	8
Switzerland	8
Italy	7
Japan	7
China	6
Spain	5
Netherlands	5
Australia	5
Sweden	4

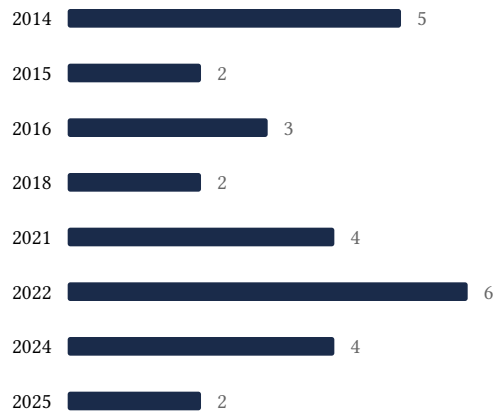
Citing-institution prestige and the spread of citing countries speak to recognition **beyond the scholar's own institution and circle** — the dispersion the AAO looks for. World rankings (SCImago / THE / QS) are context, not a stand-alone criterion: the AAO does not treat a citing institution's rank 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.

2007  2

2008  4



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	Review of particle physics	14	8 CFR 204.5(h)(3)(v) – Criterion 5
Contribution 2	Review of particle physics	8	8 CFR 204.5(h)(3)(v) – Criterion 5
Contribution 3	Review of particle physics	9	8 CFR 204.5(h)(3)(v) – Criterion 5