Citation Evidence Report

EB-2 NIW Petition — National Interest Waiver

Matter of Dhanasar · Prong 2 (well-positioned)

Miklos Gyulassy

Professor of Physics Emeritus, Columbia University

Google Scholar profile

Generated 2026-05-21 by CiteMap. This report organises Google Scholar citation data into the structure USCIS adjudicators apply to Prong 2 of Matter of Dhanasar (the petitioner is well positioned to advance the proposed endeavor) — the prong where past citation evidence is most probative. 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

14	14	3	95
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.

100.0% independent of 14 classified citing papers

Citation type	Count
Independent	14
Self-citation	0
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 HIJING, a seminal Monte Carlo model for simulating multiple jet production in high-energy particle collisions, establishing a foundational computational framework for the field.

The researcher's primary contribution is the development of HIJING, a Monte Carlo model designed for multiple jet production in proton-proton, proton-nucleus, and nucleus-nucleus collisions. This work, published in Physical Review D in 1991, serves as the core foundation of this research line, with no subsequent follow-up papers by the researcher identified in this specific context.

This line of work appears to address the complex challenge of modeling multi-jet dynamics in high-energy nuclear physics. By introducing a dedicated Monte Carlo framework, the researcher provided a novel computational tool to simulate these intricate collision processes, filling a critical need for accurate theoretical predictions in heavy-ion and hadronic physics.

The significance of this contribution is underscored by its extensive uptake within the scientific community. With over 3,500 citations, the work is clearly highly influential. Furthermore, analysis of citing papers reveals that 100% of the classified citations originate from independent researchers, indicating that the model 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

HIJING: A Monte Carlo model for multiple jet production in pp, pA, and AA collisions

1991 · Physical Review D · 3,559 citations (GS)

No.	Citing paper	Citing institution(s)	Country	S2
1	Software and computing for Run 3 of the ATLAS experiment at the LHC (2025)	Aix Marseille Univ, Aix-Marseille Université, ATLAS Collaboration	Canada, France, Germany	—
2	Glauber Modeling in High-Energy Nuclear Collisions (2007)	Brookhaven National Laboratory, Massachusetts Institute of Technology, University of Kansas	Germany, United States	—
3	The CMS experiment at the CERN LHC (2008)	—	—	—

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 developed HIJING 1.0, a seminal Monte Carlo program for simulating parton and particle production in high-energy hadronic and nuclear collisions, establishing a foundational computational tool for the field.

The researcher's primary contribution is the development of HIJING 1.0, a Monte Carlo program designed for simulating parton and particle production in high-energy hadronic and nuclear collisions. This work, published in Computer Physics Communications in 1994, serves as the core foundation of this research line, with no subsequent follow-up papers by the same researcher identified in the provided data.

This line of work appears to address the need for robust computational frameworks to model complex particle interactions in high-energy physics. By providing a dedicated Monte Carlo program, the researcher offered a specialized tool for generating event simulations, which is critical for theoretical predictions and experimental analysis in nuclear and particle physics. The absence of follow-up papers by the researcher suggests that HIJING 1.0 itself established a complete and enduring methodological contribution.

The significance of this contribution is evidenced by its substantial citation count of 1790, indicating widespread adoption within the scientific community. Furthermore, analysis of citing papers reveals that 100% of the classified citations originate from independent researchers, rather than the author or their immediate collaborators. This high degree of independent uptake underscores the tool's utility and impact as a standard resource for external researchers in the field.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 4 · **1 flagged influential by Semantic Scholar**

CORE PAPER

HIJING 1.0: A Monte Carlo Program for Parton and Particle Production in High Energy Hadronic and Nuclear Collisions

1994 · Computer Physics Communications · 1,790 citations (GS)

Field-normalised: 793 Semantic Scholar citations place it in the top 1% of Physics papers from 1994 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	The ALICE experiment: a journey through QCD (2024)	Bose Institute, CERN, European Organization for Nuclear Research (CERN)	Czech Republic, Germany, India	—
2	The PHOBOS Perspective on Discoveries at RHIC (2005)	Argonne National Laboratory, Brookhaven National Laboratory, Institute of Nuclear Physics PAN	Taiwan, United States	—
3	The ATLAS Simulation Infrastructure. (2010)	—	—	**Influential**
4	The ALICE experiment at the CERN LHC (2008)	Centro de Aplicaciones Tecnológicas y Desarrollo Nuclear, Heidelberg University, Université de Nantes	France, Germany, Norway	—

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 identified and characterized novel forms of quark-gluon plasma matter at the Relativistic Heavy Ion Collider, establishing a foundational framework for understanding high-energy nuclear interactions.

The researcher's primary contribution centers on the 2005 publication titled 'New Forms of QCD Matter Discovered at RHIC.' This work serves as the cornerstone of the cited line of inquiry, presenting evidence for previously unobserved states of quantum chromodynamic matter generated in heavy-ion collisions. The titles indicate a focus on experimental discovery within the context of high-energy physics at the Relativistic Heavy Ion Collider.

This line of work appears to address the critical need to empirically validate theoretical predictions regarding the phase structure of nuclear matter under extreme conditions. By reporting the discovery of new forms of QCD matter, the research likely bridged the gap between theoretical models of quark-gluon plasma and experimental observation. The absence of follow-up papers by

the same researcher in this specific dataset suggests that the 2005 publication stands as a definitive, self-contained report of these initial findings, rather than part of a prolonged iterative series by the author.

The significance of this contribution is underscored by its substantial citation count of 1,728, indicating widespread recognition and utility within the physics community. Furthermore, analysis of citing literature reveals that 100% of the classified citations originate from independent researchers, excluding the author, co-authors, and institutional colleagues. This high degree of independent uptake demonstrates that the work has been broadly adopted and relied upon by the wider scientific community to advance understanding in high-energy nuclear physics.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 7

CORE PAPER

New Forms of QCD Matter Discovered at RHIC

2005 · arXiv (preprint) · 1,728 citations (GS)

Field-normalised: 895 Semantic Scholar citations place it in the top 1% of Physics papers from 2005 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Collective Flow and Viscosity in Relativistic Heavy-Ion Collisions (2013)	The Ohio State University, Utrecht University	Netherlands, United States	—
2	Dense nuclear matter equation of state from heavy-ion collisions (2023)	Institute for Nuclear Theory, Los Alamos National Laboratory, Ludwig Maximilian University of Munich	Germany, Poland, United States	—
3	Decoding the phase structure of QCD via particle production at high energy (2018)	GSI Helmholtzzentrum für Schwerionenforschung, GSI Helmholtzzentrum für Schwerionionenforschung, Universität Heidelberg	Germany	—
4	Alternative ansatz to wounded nucleon and binary collision scaling in high-energy nuclear collisions (2015)	Duke University	United States	—
5	Evidence for quark-matter cores in massive neutron stars (2020)	Nordic Institute for Theoretical Physics, University of Helsinki, University of Stavanger	Finland, Norway, United States	—
6	Formation of dense partonic matter in relativistic nucleus–nucleus collisions at RHIC: Experimental evaluation by the PHENIX Collaboration (2005)	—	—	—
7	'QGP Signatures' revisited (2024)	Duke University, Yale University	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 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.

D. Citing-Institution Prestige & Geography

Top citing institutions

Institution	Country	World ranking	Citing papers
Massachusetts Institute of Technology	United States	SCImago #41 · THE 2 · QS 1	2
Brookhaven National Laboratory	United States	SCImago #1757	2
Utrecht University	Netherlands	SCImago #162 · QS =103	2
CERN	Switzerland	—	2
Duke University	United States	SCImago #115 · THE 28 · QS 62	2
University of Bergen	Norway	SCImago #1182 · THE 251–300 · QS =287	1
National Central University	Taiwan	SCImago #4063 · THE 1001–1200 · QS =587	1
University of Tennessee	United States	—	1
University of Rochester	United States	SCImago #524 · THE 127 · QS 236	1
Michigan State University	United States	SCImago #436 · THE =105 · QS 161	1
Universität Heidelberg	Germany	SCImago #459 · THE 49 · QS 80	1
University of Cape Town	South Africa	SCImago #1052 · THE =164 · QS 150	1
Uppsala University	Sweden	SCImago #349 · THE 128 · QS 93	1
Heidelberg University	Germany	—	1
GSI Helmholtz Centre for Heavy Ion Research	Germany	—	1

Geographic distribution of citing authors

Country	Citing papers
United States	9
Germany	6
Norway	3
Netherlands	2
France	2
Switzerland	2
Italy	1
Japan	1
Nepal	1
Canada	1
Finland	1
Poland	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	HIJING: A Monte Carlo model for multiple jet production in pp, pA, and AA collisions	3	Dhanasar — Prong 2 (well-positioned)

Contribution	Core paper	Indep. cites	Supports
Contribution 2	HIJING 1.0: A Monte Carlo Program for Parton and Particle Production in High Energy Hadronic and Nuclear Collisions	4	Dhanasar — Prong 2 (well-positioned)
Contribution 3	New Forms of QCD Matter Discovered at RHIC	7	Dhanasar — Prong 2 (well-positioned)