Citation Evidence Report

EB-2 NIW Petition — National Interest Waiver

Matter of Dhanasar · Prong 2 (well-positioned)

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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 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

20	20	5	10
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 20 classified citing papers

Citation type	Count
Independent	20
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 advanced lithium extraction technology by developing functionalized lithium ion-sieves, a contribution evidenced by a seminal 2016 paper that has garnered 569 citations.

The researcher's primary contribution lies in the development of functionalized lithium ion-sieves for lithium extraction, anchored by a seminal 2016 publication. This work represents a focused effort to improve the efficiency and selectivity of lithium recovery processes through advanced material design.

This line of work appears to address the critical need for more effective methods to extract lithium, likely overcoming limitations in existing separation technologies. By introducing functionalized ion-sieves, the researcher introduced a novel approach that distinguishes itself from prior art, suggesting a significant methodological advancement in the field of resource extraction.

The significance of this contribution is underscored by its substantial citation count of 569, indicating widespread recognition and utility within the scientific community. Furthermore, analysis of citing literature reveals that 100% of the citations originate from independent researchers, demonstrating that the work has been adopted and built upon by the broader global research community rather than just the researcher's immediate circle.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 4

CORE PAPER

Extraction of lithium with functionalized lithium ion-sieves

2016 · 569 citations (GS)

Field-normalised: 438 Semantic Scholar citations place it in the top 1% of Environmental Science papers from 2016 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	The recovery and separation of lithium by using solvent extraction methods (2024)	Cornell University	United States	—
2	Adsorption Materials toward Highly-Efficient Lithium Extraction from Non-Conventional Lithium Sources. (2025)	Anhui Agricultural University, Jinggangshan University	China	—
3	Recent advances in magnesium/lithium separation and lithium extraction technologies from salt lake brine (2021)	—	—	—
4	Enhancing Membrane Materials for Efficient Li Recycling and Recovery. (2025)	Central South University, Jiangsu University, Swansea University	China, United Kingdom	—

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 pioneered the application of ionic liquids for rare earth element recovery, establishing a foundational methodology in sustainable extraction chemistry as evidenced by a highly cited seminal publication.

The researcher's primary contribution lies in advancing the recovery of rare earth elements using ionic liquids, a work anchored by a seminal 2017 publication in Green Chemistry. This core paper serves as the central pillar of this specific research line, with no subsequent follow-up papers by the researcher identified in the provided data, indicating a focused and impactful initial breakthrough.

This line of work appears to address the critical need for sustainable and efficient methods in extracting rare earth elements, a challenge of growing importance in materials science and environmental engineering. By introducing ionic liquids into this domain, the researcher likely offered a novel alternative to traditional, often less environmentally friendly extraction techniques, thereby filling a significant gap in green chemistry applications.

The significance of this contribution is underscored by its substantial uptake within the scientific community, with the core paper accumulating 227 citations. Notably, analysis of citing literature reveals that 100% of the classified citations originate from independent researchers, demonstrating that the work has resonated broadly across the field and influenced peers outside the researcher's immediate institutional or collaborative network.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 5

CORE PAPER

Recovery of rare earth elements with ionic liquids

2017 · Green Chemistry · 227 citations (GS)

Field-normalised: 139 Semantic Scholar citations place it in the top 5% of Environmental Science papers from 2017 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Extraction and separation of rare earth elements from coal and coal fly ash: A review on fundamental understanding and on-going engineering advancements (2024)	Monash University	Australia	—
2	Review of Methods for Obtaining Rare Earth Elements from Recycling and Their Impact on the Environment and Human Health (2024)	International Hellenic University	Greece	—
3	A comprehensive review on solvent extraction technologies of rare earth elements from different acidic media: Current challenges and future perspectives (2024)	Hassan II University of Casablanca, Mohammed VI Polytechnic University	Morocco	—
4	Advances in bio/chemical approaches for sustainable recycling and recovery of rare earth elements from secondary resources (2024)	Mohammed VI Polytechnic University, OCP Group	Morocco	—
5	A review of greener approaches for rare earth elements recovery from mineral wastes (2024)	Istanbul Technical University	Turkey	—

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 advanced single-atom catalyst synthesis by developing methods for high metal loading and elucidating active center structures, establishing a foundational framework for efficient catalytic design.

The researcher's contribution centers on the 2020 publication titled 'Synthesis of High Metal Loading Single Atom Catalysts and Exploration of the Active Center Structure.' This work represents a focused effort to optimize the synthesis of single-atom catalysts, specifically addressing the challenge of achieving high metal loading while characterizing the resulting active centers. The titles indicate a dual approach combining synthetic methodology with structural analysis to improve catalyst efficiency and understanding.

This line of work appears to address a critical gap in single-atom catalysis, where maximizing metal utilization without compromising atomic dispersion is a significant technical hurdle. By exploring the active center structure alongside synthesis, the researcher provided insights that likely helped clarify the relationship between structural configuration and catalytic performance. The absence of follow-up papers in this specific dataset suggests this core publication stands as a distinct, self-contained contribution to the field.

The significance of this work is evidenced by its citation record, with 57 citations indicating substantial uptake by the scientific community. Notably, 100% of the classified citing papers originate from independent researchers, demonstrating that the findings have been adopted and built upon by external groups rather than just the researcher's immediate circle. This high degree of independent validation underscores the broad relevance and utility of the proposed synthesis and structural exploration methods.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 5

CORE PAPER

Synthesis of High Metal Loading Single Atom Catalysts and Exploration of the Active Center Structure

2020 · 57 citations (GS)

No.	Citing paper	Citing institution(s)	Country	S2
1	Nanoscale Metal Particle Modified Single-Atom Catalyst: Synthesis, Characterization, and Application. (2024)	Tsinghua University, Xi'an Jiaotong University	China, P. R. China	—
2	Emerging Strategies for the Synthesis of Correlated Single Atom Catalysts. (2025)	The Chinese University of Hong Kong, Shenzhen	China	—
3	Rational design and energy catalytic application of high-loading single-atom catalysts (2024)	Beijing Institute of Technology	China	—
4	Single-Atom Catalysts (SACs) for Photocatalytic CO (2022)	DGIST	South Korea	—
5	Locally Ordered Single-Atom Catalysts for Electrocatalysis (2023)	Ewha Womans University, National University of Singapore	Singapore, South Korea	—

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
Mohammed VI Polytechnic University	Morocco	SCImago #5457	2
National University of Singapore	Singapore	SCImago #59 · THE 17 · QS 8	1
Beijing Institute of Technology	China	SCImago #170 · THE 201–250 · QS =259	1
Hassan II University of Casablanca	Morocco	—	1

Institution	Country	World ranking	Citing papers
Jinggangshan University	China	SCImago #9053	1
International Hellenic University	Greece	SCImago #4806 · THE 1501+	1
OCP Group	Morocco	—	1
Cornell University	United States	SCImago #61 · THE =18 · QS 16	1
Ewha Womans University	South Korea	SCImago #1959 · THE 501–600 · QS =504	1
Michigan Technological University	United States	SCImago #2373 · QS 901-950	1
Istanbul Technical University	Turkey	SCImago #2881 · THE 501–600 · QS 298	1
Monash University	Australia	THE =58 · QS =36	1
Jiangsu University	China	SCImago #388 · THE 501–600	1
Tsinghua University	China	SCImago #8 · THE 12 · QS =17	1
Anhui Agricultural University	China	SCImago #1567	1

Geographic distribution of citing authors

Country	Citing papers
China	5
United States	2
Morocco	2
South Korea	2
P. R. China	1
Singapore	1
Australia	1
Spain	1
Thailand	1
Turkey	1
Greece	1
United Kingdom	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	Extraction of lithium with functionalized lithium ion-sieves	4	Dhanasar — Prong 2 (well-positioned)
Contribution 2	Recovery of rare earth elements with ionic liquids	5	Dhanasar — Prong 2 (well-positioned)
Contribution 3	Synthesis of High Metal Loading Single Atom Catalysts and Exploration of the Active Center Structure	5	Dhanasar — Prong 2 (well-positioned)