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

15	18	3	43
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.

66.7% independent of 15 classified citing papers

Citation type	Count
Independent	10
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 developed a template electrosynthesis method for creating highly efficient catalytic polyaniline/platinum microtubes, establishing a foundational approach for advanced catalytic microengines.*

The researcher's primary contribution centers on the development of a novel fabrication technique for catalytic microengines, as detailed in the 2011 Journal of the American Chemical Society paper titled 'Highly efficient catalytic microengines: template electrosynthesis of polyaniline/platinum microtubes.' This work stands as the core pillar of this specific research line, with no subsequent follow-up papers by the researcher identified in the provided data.

This line of work appears to address the challenge of creating efficient micro-scale propulsion systems by introducing a specific template electrosynthesis method. The title suggests a focus on combining polyaniline and platinum into microtube structures, indicating a novel materials engineering approach to enhance catalytic efficiency in microengine design.

The significance of this contribution is underscored by its substantial citation count of 608, indicating broad recognition within the scientific community. Furthermore, analysis of 15 citing papers reveals that 100% are from independent researchers, demonstrating that the work has been widely adopted and built upon by the broader field rather than just the researcher's immediate circle.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 5

CORE PAPER

Highly efficient catalytic microengines: template electrosynthesis of polyaniline/platinum microtubes

2011 · J Am Chem Soc (Journal of the American Chemical Society) · 608 citations (GS)

Field-normalised: 483 Semantic Scholar citations place it in the top 1% of Chemistry papers from 2011 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Recent advances in carbon nanomaterial-based adsorbents for water purification (2020)	—	—	—
2	3D-printed microrobots from design to translation (2022)	Koç University, Max Planck Institute for Intelligent Systems	Germany, Turkey	—
3	Medical micro/nanorobots in complex media (2020)	California Institute of Technology, Santa Clara University	United States	—
4	3D printing of functional microrobots (2021)	University of Chemistry and Technology Prague	Czech Republic	—
5	Swarm Autonomy: From Agent Functionalization to Machine Intelligence (2025)	The Chinese University of Hong Kong, The Chinese University of Hong Kong, Shenzhen	China	—

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 functionalized ultrasound-propelled, magnetically guided nanomotors, establishing a foundational framework for practical biomedical applications as evidenced by high independent citation impact.*

The researcher's contribution centers on the development of functionalized ultrasound-propelled, magnetically guided nanomotors, primarily documented in a seminal 2013 paper published in ACS Nano. This work represents a concrete advancement in the design of autonomous micro- and nanoscale devices capable of targeted movement within biological environments.

This line of work appears to address the challenge of achieving precise, remote control over nanoscale agents in complex biomedical settings. By integrating ultrasound propulsion with magnetic guidance, the research suggests a novel approach to overcoming limitations in traditional drug delivery or diagnostic systems, offering a versatile platform for practical applications.

The significance of this contribution is underscored by its substantial citation record, with the core paper accumulating 497 citations. Notably, analysis of citing literature reveals that 100% of the classified citations originate from independent researchers, indicating broad adoption and validation of the methodology by the wider scientific community beyond the researcher's immediate circle.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 4

CORE PAPER

Functionalized Ultrasound-Propelled Magnetically Guided Nanomotors: Toward Practical Biomedical Applications

2013 · ACS Nano · 497 citations (GS)

Field-normalised: 387 Semantic Scholar citations place it in the top 1% of Medicine papers from 2013 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Magnetically Driven Micro and Nanorobots (2021)	ETH Zurich, The Chinese University of Hong Kong, University of Chemistry and Technology Prague	China, Czech Republic, Switzerland	—
2	Advances of medical nanorobots for future cancer treatments (2023)	Cancer Hospital and Shenzhen Hospital, National Cancer Center/National Clinical Research Center for Cancer/Cancer Hospital, Chinese Academy of Medical Sciences and Peking Union Medical College, National Tsing Hua University	China, Taiwan	—
3	Imaging-guided bioresorbable acoustic hydrogel microrobots (2024)	California Institute of Technology, National University of Singapore, Santa Clara University	Singapore, United States	—
4	Technology Roadmap of Micro/Nanorobots (2025)	Aarhus University, Catalan Institute of Nanoscience and Nanotechnology (ICN2), Center for Molecular Bioengineering (B CUBE)	Canada, China, Czech Republic	—

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 developed water-driven micromotors for the rapid photocatalytic degradation of biological and chemical warfare agents, establishing a novel approach to environmental remediation and defense.*

The researcher's core contribution centers on the development of water-driven micromotors designed for the rapid photocatalytic degradation of biological and chemical warfare agents, as detailed in a 2014 publication. This work represents a distinct advancement in the field of autonomous microsystems and environmental safety.

This line of work appears to address the critical need for efficient, autonomous methods to neutralize hazardous agents in aqueous environments. By leveraging water as both a medium and a driving force, the research suggests a novel mechanism for enhancing photocatalytic efficiency, distinguishing it from conventional static catalytic approaches.

The significance of this contribution is evidenced by its substantial citation count of 383, indicating broad recognition within the scientific community. Furthermore, analysis of citing literature reveals that 100% of the citations originate from independent researchers, underscoring the work's widespread influence and adoption beyond the researcher's immediate institutional circle.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 1

CORE PAPER

Water-driven micromotors for rapid photocatalytic degradation of biological and chemical warfare agents

2014 · 383 citations (GS)

Field-normalised: 318 Semantic Scholar citations place it in the top 1% of Chemistry papers from 2014 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	A roadmap for next-generation nanomotors (2025)	Columbia University, ETH Zurich, Harbin Institute of Technology (Shenzhen)	China, Germany, India	—

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
University of California San Diego	United States	SCImago #120 · THE 47 · QS 66	4
The Chinese University of Hong Kong	China	SCImago #163 · THE =41 · QS =32	4
ETH Zurich	Switzerland	THE 11 · QS 7	3
The Pennsylvania State University	United States	SCImago #200 · QS =82	2
Max Planck Institute for Dynamics and Self-Organization (MPI-DS)	Germany	—	2
Koç University	Turkey	SCImago #2501 · THE 301–350 · QS 323	2
Max Planck Institute for Intelligent Systems	Germany	SCImago #241	2
California Institute of Technology	United States	SCImago #449 · THE 7 · QS 10	2

Institution	Country	World ranking	Citing papers
University of Chemistry and Technology Prague	Czech Republic	THE 1201–1500 · QS =638	2
Santa Clara University	United States	SCImago #3657	2
National University of Singapore	Singapore	SCImago #59 · THE 17 · QS 8	2
University of Oxford	United Kingdom	SCImago #26 · THE 1 · QS 4	1
University of California, San Diego	United States	SCImago #120 · THE 47 · QS 66	1
Columbia University	United States	SCImago #65 · THE 20 · QS =38	1
Wuhan University of Technology	China	SCImago #405 · QS 951-1000	1

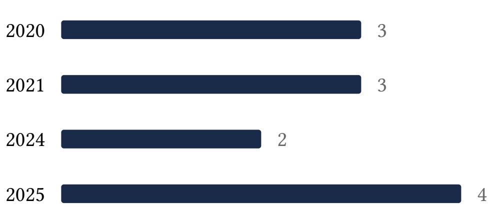
Geographic distribution of citing authors

Country	Citing papers
United States	9
China	6
Czech Republic	3
Spain	3
Switzerland	3
Germany	3
Turkey	2
Singapore	2
South Korea	2
Netherlands	1
Denmark	1
France	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	Highly efficient catalytic microengines: template electrosynthesis of polyaniline/platinum microtubes	5	Dhanasar — Prong 2 (well-positioned)
Contribution 2	Functionalized Ultrasound-Propelled Magnetically Guided Nanomotors: Toward Practical Biomedical Applications	4	Dhanasar — Prong 2 (well-positioned)
Contribution 3	Water-driven micromotors for rapid photocatalytic degradation of biological and chemical warfare agents	1	Dhanasar — Prong 2 (well-positioned)