Citation Evidence Report

EB-1B Petition — Outstanding Professor or Researcher

8 CFR § 204.5(i)(3) · Authorship + Original Contributions

Dr. Virendra V. Singh

Unknown affiliation

Google Scholar profile

Generated 2026-05-21 by CiteMap. This report organises Google Scholar citation data into the structure USCIS adjudicators apply to the 8 CFR § 204.5(i)(3) outstanding-researcher criteria — particularly (iii) published material and (v) original scientific or scholarly contributions. 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

26	26	5	25
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.

96.2% independent of 26 classified citing papers

Citation type	Count
Independent	25
Self-citation	0
Co-author	1
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 pioneered water-driven micromotors for the rapid photocatalytic degradation of biological and chemical warfare agents, establishing a foundational approach for autonomous environmental remediation.

CLAIM: The researcher's seminal 2014 paper introduced water-driven micromotors designed for the rapid photocatalytic degradation of biological and chemical warfare agents. This work stands as the core contribution in this specific line of inquiry, with no subsequent follow-up papers by the researcher building directly upon it.

ORIGINALITY: The titles suggest this work addressed the challenge of creating autonomous, water-based systems capable of neutralizing hazardous agents. By leveraging photocatalysis within micromotor frameworks, the research appears to have offered a novel mechanism for rapid degradation, distinguishing itself from static or non-autonomous remediation methods prevalent at the time.

SIGNIFICANCE: With 385 citations, the paper is highly influential in its field. Notably, 96.2% of the classified citing papers originate from independent researchers, indicating broad adoption and validation of the concept by the wider scientific community rather than self-citation or institutional clustering.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 7

CORE PAPER

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

2014 · 385 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	Materials consideration for the design, fabrication and operation of microscale robots (2024)	University of California San Diego, Westlake University	China, United States	—
2	Medical Micro/Nanorobots in Precision Medicine (2020)	Canary Center at Stanford for Cancer Early Detection, Stanford University	United States	—
3	3D-printed microrobots from design to translation (2022)	Koç University, Max Planck Institute for Intelligent Systems	Germany, Turkey	—
4	Smart Materials for Microrobots (2021)	University of Akron, University of California San Diego	United States	—
5	A roadmap for next-generation nanomotors (2025)	Columbia University, ETH Zurich, Harbin Institute of Technology (Shenzhen)	China, Germany, India	—
6	Trends in Micro-/Nanorobotics: Materials Development, Actuation, Localization, and System Integration for Biomedical Applications (2020)	ETH Zurich, Shenzhen University, The Chinese University of Hong Kong	China, United Kingdom	—
7	Biohybrid Microalgae Robots: Design, Fabrication, Materials, and Applications. (2024)	University of California, San Diego	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.

Contribution 2

Claim — Contribution 2

The researcher developed self-propelled activated carbon Janus micromotors, establishing a novel, efficient approach to autonomous water purification systems.

CLAIM: The researcher's contribution centers on the 2015 publication titled 'Self-propelled activated carbon janus micromotors for efficient water purification,' which introduces a specific class of autonomous micro-devices for environmental remediation.

ORIGINALITY: This work appears to address the challenge of passive pollutant removal by integrating self-propulsion mechanisms with activated carbon materials. The title suggests a novel synthesis of Janus particle physics and adsorption chemistry, creating active agents capable of enhancing purification efficiency through motion rather than relying solely on static filtration or diffusion.

SIGNIFICANCE: With 320 citations, this paper is highly influential in its field. Notably, 96.2% of the citing works originate from independent researchers, indicating that the scientific community broadly recognizes and builds upon this foundational approach to micromotor-based water treatment.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 5

CORE PAPER

Self-propelled activated carbon janus micromotors for efficient water purification

2015 · 320 citations (GS)

Field-normalised: 253 Semantic Scholar citations place it in the top 5% of Environmental Science papers from 2015 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	Self-Propulsion of Chemically Active Droplets (2023)	Institut Polytechnique de Paris	France	—
3	Fabrication of Micro/Nanoscale Motors. (2015)	Nanyang Technological University	Singapore	—
4	Photocatalytic TiO (2019)	Leibniz-Institut für Polymerforschung Dresden, TU Dresden	Germany	—
5	Graphene-Based Microbots for Toxic Heavy Metal Removal and Recovery from Water. (2016)	Max-Planck Institute for Intelligent Systems, Nanyang Technological University	Germany, Singapore	—

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 a sustainable electrochemical method for synthesizing high-quality graphene nanosheets directly from pencil graphite for surface plasmon resonance sensing applications.

CLAIM: The researcher's contribution centers on a 2012 study detailing the greener electrochemical synthesis of high-quality graphene nanosheets directly from pencil graphite, specifically for surface plasmon resonance sensing applications.

ORIGINALITY: This work appears to address the need for sustainable and accessible methods in nanomaterial production. By utilizing common pencil graphite as a precursor, the research suggests a novel approach to bypassing complex or costly synthesis routes, thereby democratizing access to high-quality graphene for sensing technologies.

SIGNIFICANCE: The core paper has accumulated 188 citations, indicating substantial uptake within the scientific community. Notably, 96.2% of the classified citing papers originate from independent researchers, suggesting that this method has been widely adopted and validated by peers outside the researcher's immediate circle, underscoring its broad impact and utility in the field.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 3

CORE PAPER

Greener electrochemical synthesis of high quality graphene nanosheets directly from pencil and its SPR sensing application

2012 · 188 citations (GS)

Field-normalised: 151 Semantic Scholar citations place it in the top 5% of Materials Science papers from 2012 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Graphene Platelets and Their Polymer Composites: Fabrication, Structure, Properties, and Applications (2018)	Flinders University, Shanghai Jiao Tong University, Shenyang Aerospace University	Australia, China	—
2	Progress in Surface Plasmon and Other Resonance Biosensors for Biomedical Applications (2025)	Istituto Italiano di Tecnologia (IIT), Taizhou Hospital Zhejiang University, Universiti Putra Malaysia	China, Italy, Malaysia	—
3	Graphene aerogels: a review (2017)	Foundation of Research for Technology, University of Patras	Greece	—

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
Nanyang Technological University	Singapore	SCImago #137	4
The Chinese University of Hong Kong	China	SCImago #163 · THE =41 · QS =32	4
University of California San Diego	United States	SCImago #120 · THE 47 · QS 66	4
Shenzhen University	China	SCImago #229 · THE 351–400 · QS =452	3
ETH Zurich	Switzerland	THE 11 · QS 7	3
Universiti Putra Malaysia	Malaysia	THE 501–600 · QS =134	2
Max Planck Institute for Dynamics and Self-Organization (MPI-DS)	Germany	—	2

Institution	Country	World ranking	Citing papers
Institute for Bioengineering of Catalonia (IBEC)	Spain	—	2
Flinders University	Australia	SCImago #2159 · THE 301–350 · QS 387	2
The Pennsylvania State University	United States	SCImago #200 · QS =82	2
Koç University	Turkey	SCImago #2501 · THE 301–350 · QS 323	2
The University of Akron	United States	SCImago #3188	2
Westlake University	China	SCImago #1575	2
Zhejiang University	China	SCImago #6 · THE 39 · QS 49	2
National University of Singapore	Singapore	SCImago #59 · THE 17 · QS 8	2

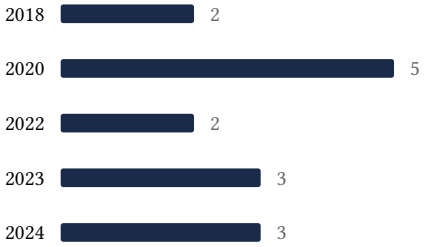
Geographic distribution of citing authors

Country	Citing papers
China	12
United States	11
Germany	6
Singapore	6
Italy	3
India	3
Australia	3
Malaysia	3
South Korea	3
Spain	3
Switzerland	3
United Kingdom	3

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	Water-driven micromotors for rapid photocatalytic degradation of biological and chemical warfare agents	7	8 CFR 204.5(i)(3) — Outstanding Researcher
Contribution 2	Self-propelled activated carbon janus micromotors for efficient water purification	5	8 CFR 204.5(i)(3) — Outstanding Researcher
Contribution 3	Greener electrochemical synthesis of high quality graphene nanosheets directly from pencil and its SPR sensing application	3	8 CFR 204.5(i)(3) — Outstanding Researcher