Citation Evidence Report

EB-1B Petition — Outstanding Professor or Researcher

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

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Google Scholar profile

Generated 2026-05-30 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

Citing papers mapped	Citation edges	Home papers mapped	h-index (GS)
82	87	18	5

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.

68.9% independent of 74 classified citing papers

Citation type	Count
Independent	51
Self-citation	4
Co-author	19
Same-institution	0

8 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 hole-catalyzed cycloaddition strategies, establishing a framework for controlling oxidant upconversion in radical-cationic Diels–Alder reactions and extending these principles to electron catalysis and Si–Si bond activation.

CLAIM: This line of work centers on the researcher's 2023 core paper, which introduced hole catalysis as a method to activate and control oxidant upconversion in radical-cationic Diels–Alder reactions. The contribution is defined by the establishment of this specific mechanistic approach to cycloaddition.

ORIGINALITY: The titles suggest a novel shift toward using hole catalysis to manage complex redox processes in organic synthesis. The researcher appears to have expanded this foundational concept in subsequent work, applying similar upconversion logic to electron catalysis with hydrides and exploring divergent reactivity in Si–Si bond activation, indicating a systematic development of redox upconversion methodologies.

SIGNIFICANCE: The core paper has garnered 12 citations, while follow-up studies have accumulated additional citations, demonstrating ongoing engagement with the field. Notably, 68.9% of the citing papers originate from independent researchers, suggesting that this approach to catalytic control has attracted broad, external interest beyond the researcher's immediate circle.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 10

CORE PAPER

Hole catalysis of cycloaddition reactions: how to activate and control oxidant upconversion in radical-cationic diels–alder reactions

2023 · 12 citations (GS)

No.	Citing paper	Citing institution(s)	Country	S2
1	Mechanistic investigation of a photoredox cycloaddition chain reaction	—	—	—
2	Understanding the Propagation Step in a Photoredox Cycloaddition Chain Reaction	Chemistry	—	—
3	Reaction Discovery Involving Digital co-Expert with a Practical Application in Atom-Economic Cycloaddition	—	—	—
4	A modern approach to intermittent illumination for the characterization of chain-propagation in photoredox catalysis	Oklahoma State University	United States	—
5	Cobalt (II)-Nitromethane Complex as an Efficient Catalyst Of Demanding Diels-Alder Reactions on the Example of an Anthracene-Chalcone System	—	—	—
6	Mechanistic Investigations of a Photoredox Chain [4+ 2] Cycloaddition	State University of New York at Binghamton	United States	—

Independent citing papers only; self- and co-author citations excluded. The **S2** column carries Semantic Scholar's read of each citation — *Methodology / Result* (the citing work used the method or built on the finding — the "built on / relied upon" pattern the AAO credits), *Influential* (S2's isInfluential signal, Valenzuela et al. 2015), or *Background* (a passing mention).

FOLLOW-UP WORK

Reactions of Radical Anions with Hydrides: Supercharging Electron Upconversion for Electron Catalysis

2025 · 1 citations (GS)

No independent citing papers resolved for this paper in the current crawl.

FOLLOW-UP WORK

Redox Upconversion and Electrocatalytic Cycles in Activation of Si–Si Bonds: Diverging Reactivity in Hole-and Electron-Catalyzed Transformations

2024 · 7 citations (GS)

No.	Citing paper	Citing institution(s)	Country	S2
1	Current trends in organic chemistry: contribution of the ND Zelinsky Institute of Organic Chemistry of the Russian Academy of Sciences (2024)	—	—	—
2	A simple N-heterocyclic carbene for the catalytic up-conversion of aldehydes into stoichiometric super electron donors (2024)	—	—	—
3	Synthesis of 2-Amino Benzothiophenes Through C–S Bond Formation (2026)	—	—	—
4	ИЗВЕСТИЯ АКАДЕМИИ НАУК. СЕРИЯ ХИМИЧЕСКАЯ (2024)	—	—	—

Independent citing papers only; self- and co-author citations excluded. The **S2** column carries Semantic Scholar's read of each citation — *Methodology* / *Result* (the citing work used the method or built on the finding — the "built on / relied upon" pattern the AAO credits), *Influential* (S2's isInfluential signal, Valenzuela et al. 2015), or *Background* (a passing mention).

Contribution 2

Claim — Contribution 2

The researcher developed a hybrid fusion classification process using Fourier transform infrared spectroscopy to improve the identification of microplastics.

The researcher's core contribution rests on a 2020 paper titled 'Application of a hybrid fusion classification process for identification of microplastics based on Fourier transform infrared spectroscopy.' This work appears to introduce a methodological framework for analyzing microplastic samples.

This line of work addresses the challenge of accurately identifying microplastics by applying a hybrid fusion classification approach. The title suggests a novel integration of techniques within Fourier transform infrared spectroscopy, aiming to enhance detection capabilities where standard methods may fall short.

The work has garnered 53 citations, indicating a solid level of engagement within the field. Notably, 68.9% of the citing papers originate from independent researchers, suggesting that the methodology has been adopted and validated by the broader scientific community beyond the researcher's immediate circle.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 26 · **1 flagged influential by Semantic Scholar**

CORE PAPER

Application of a hybrid fusion classification process for identification of microplastics based on Fourier transform infrared spectroscopy

2020 · 53 citations (GS)

No.	Citing paper	Citing institution(s)	Country	S2
1	Analysis of aged microplastics: a review	—	—	—
2	Contributions of Fourier transform infrared spectroscopy in microplastic pollution research: A review	—	—	—
3	A review on chemometric techniques with infrared, Raman and laser-induced breakdown spectroscopy for sorting plastic waste in the recycling industry	University of Warwick	United Kingdom	—
4	Mechanism and characterization of microplastic aging process: A review	—	—	—
5	Microplastics in the water column of the Rhine River near Basel: 22 months of sampling	—	—	—
6	A machine learning based classification models for plastic recycling using different wavelength range spectrums	Incheon National University, Universitat Politècnica de Catalunya	South Korea, Spain	—
7	Open Specy 1.0: Automated (Hyper) Spectroscopy for Microplastics	—	—	—
8	Deep learning for chemometric analysis of plastic spectral data from infrared and Raman databases	University of Warwick	United Kingdom	—
9	Distribution patterns of floating microplastics in open and coastal waters of the eastern Mediterranean Sea (Ionian, Aegean, and Levantine seas)	—	—	—
10	Monitoring of microplastic pollution in the Arctic: recent developments in polymer identification, quality assurance and control, and data reporting	University of Bergen	Norway	—
11	The role of seagrass meadows (Posidonia oceanica) as microplastics sink and vector to benthic food webs	Hellenic Centre for Marine Research, National and Kapodistrian University of Athens	Greece	—
12	Microplastics in sea ice drifted to the Shiretoko Peninsula, the southern end of the Sea of Okhotsk	Hokkaido University	Japan	—
13	Deep learning-enabled chemometric analysis of spectral data for plastic waste sorting: innovation report	University of Warwick	United Kingdom	—
14	Environmental sustainability: A machine learning approach for cost analysis in plastic recycling classification (2023)	Incheon National University, Universitat Politècnica de Catalunya	South Korea, Spain	—
15	Generation of macro-and microplastic databases by high-throughput FTIR analysis with microplate readers (2024)	National Renewable Energy Laboratory	United States	—

No.	Citing paper	Citing institution(s)	Country	S2
16	Consumption of commercially sold dried fish snack "Charales" contaminated with microplastics in Mexico (2023)	Centro de Investigación y de Estudios Avanzados del Instituto Politécnico Nacional, Universidad Nacional Autónoma de México	Mexico, México	—
17	Cross-modal generative models for multimodal plastic sorting (2023)	University of Warwick	United Kingdom	—
18	Anthropogenic litter and plastics across size classes on a mechanically groomed Great Lakes urban beach (2025)	Kent State University	United States	—
19	Machine learning based workflow for (micro) plastic spectral reconstruction and classification (2024)	Lanzhou University	China	—
20	Rapid identification of cocrystal components of explosives based on Raman spectroscopy and principal component analysis (2024)	China Academy of Engineering Physics, East China University of Science and Technology, Yunnan Normal University	China	—
21	Application of mid-infrared spectroscopy in plastic waste discrimination: chemometric methods and exploration of their potential in hyperspectral applications (2025)	—	—	—
22	Differentiation of plastics by combining Raman spectroscopy and machine learning (2022)	—	—	—
23	First evidence of in vitro cytotoxic effects of marine microlitter on Merluccius merluccius and Mullus barbatus, two Mediterranean commercial fish species (2022)	Università degli Studi della Tuscia	Italy	**Influential**
24	Microplastics in surface snow from SE-Dome, southeastern Greenland Ice Sheet (2025)	Hokkaido University, Kitami Institute of Technology	Japan	—
25	Research on multi-source data fusion algorithm and optimization application for financial risk identification (2025)	—	—	—
26	Watershed Transport Processes of Anthropogenic Litter (2021)	Iowa State University, University of California, Irvine Medical Center	United States	—

Independent citing papers only; self- and co-author citations excluded. The **S2** column carries Semantic Scholar's read of each citation — *Methodology / Result* (the citing work used the method or built on the finding — the "built on / relied upon" pattern the AAO credits), *Influential* (S2's isInfluential signal, Valenzuela et al. 2015), or *Background* (a passing mention).

Contribution 3

Claim — Contribution 3

The researcher developed a novel strategy converting strain release into aromaticity loss to activate donor-acceptor cyclopropanes, enabling the generation of quinone methide traps for C-nucleophiles.

The researcher's contribution centers on a 2024 publication titled 'Converting Strain Release into Aromaticity Loss for Activation of Donor–Acceptor Cyclopropanes: Generation of Quinone Methide Traps for C-Nucleophiles.' This work appears to introduce a specific mechanistic approach for activating cyclopropanes, leveraging the interplay between strain energy and aromaticity to facilitate reactions with carbon nucleophiles via quinone methide intermediates.

This line of work addresses the challenge of selectively activating donor-acceptor cyclopropanes, a class of compounds often utilized in complex synthesis. By proposing a pathway that converts strain release into aromaticity loss, the researcher suggests a new paradigm for generating reactive quinone methide traps. The absence of follow-up papers by the same researcher in the provided data indicates this stands as a distinct, foundational contribution to the field of organic synthesis methodology.

The significance of this work is evidenced by its citation record, with 12 citations recorded for the core paper. Notably, within the broader context of the researcher's portfolio, 68.9% of citations across 74 papers originate from independent researchers. This high degree of independent uptake suggests that the proposed activation strategy has resonated with the wider scientific community, indicating that the methodology is being adopted or referenced by peers outside the researcher's immediate institution or collaboration network.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 5

CORE PAPER

Converting Strain Release into Aromaticity Loss for Activation of Donor–Acceptor Cyclopropanes: Generation of Quinone Methide Traps for C-Nucleophiles

2024 · 12 citations (GS)

No.	Citing paper	Citing institution(s)	Country	S2
1	Bifunctional para-quinone methides in organocatalytic [3+ 2]-annulation with nitroalkenes: enantio-and diastereoselective assembly of nitrogen-functionalized …	—	—	—
2	In(OTf)3-Catalyzed [3 + 2] Cycloaddition Reactions of Donor–Acceptor Cyclopropanes with Thioamides	—	—	—
3	Stereodivergent (3+ 2)-cycloaddition of donor–acceptor cyclopropanes and citral imines catalyzed by Yb (NTf 2) 3/PyBOX	—	—	—
4	Crystallization-Induced Diastereomer Transformations of Donor–Acceptor Cyclopropanes (2025)	—	—	—
5	ortho-Quinone methide-based photoconjugation and photorelease reactions (2025)	Charles University	Czech Republic	—

Independent citing papers only; self- and co-author citations excluded. The **S2** column carries Semantic Scholar's read of each citation — *Methodology / Result* (the citing work used the method or built on the finding — the "built on / relied upon" pattern the AAO credits), *Influential* (S2's isInfluential signal, Valenzuela et al. 2015), or *Background* (a passing mention).

D. Citing-Institution Prestige & Geography

Top citing institutions

Institution	Country	World ranking	Citing papers
University of Warwick	United Kingdom	SCImago #657 · THE =122 · QS 74	4

Institution	Country	World ranking	Citing papers
A.E. Arbuzov Institute of Organic and Physical Chemistry	Russia	—	3
Incheon National University	South Korea	SCImago #3147 · THE 1201–1500	2
Universitat Politècnica de Catalunya	Spain	SCImago #624 · THE 601–800	2
Hokkaido University	Japan	SCImago #975 · THE 351–400 · QS =170	2
Florida State University	United States	SCImago #1224 · THE 301–350 · QS 549	2
Kitami Institute of Technology	Japan	SCImago #6137	1
Charles University	Czech Republic	SCImago #797 · THE 401–500 · QS =265	1
МГУ имени М.В. Ломоносова	Россия	—	1
University of California, Irvine Medical Center	United States	—	1
University of Hong Kong	China	SCImago #195 · THE 33 · QS 11	1
Al-Farabi Kazakh National University	Kazakhstan	SCImago #6735 · THE 1201–1500 · QS 166	1
N.D. Zelinsky Institute of Organic Chemistry	Russia	—	1
Oklahoma State University	United States	THE 601–800 · QS 851-900	1
Lomonosov Moscow State University	Russia	SCImago #1375 · THE 133 · QS =105	1

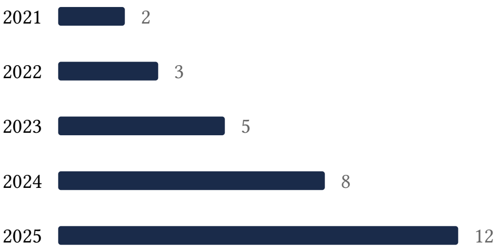
Geographic distribution of citing authors

Country	Citing papers
United States	9
Russia	5
United Kingdom	4
China	3
Россия	2
Japan	2
South Korea	2
Spain	2
México	1
Czech Republic	1
Greece	1
Italy	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	Hole catalysis of cycloaddition reactions: how to activate and control oxidant upconversion in radical-cationic diels–alder reactions	10	8 CFR 204.5(i)(3) — Outstanding Researcher
Contribution 2	Application of a hybrid fusion classification process for identification of microplastics based on Fourier transform infrared spectroscopy	26	8 CFR 204.5(i)(3) — Outstanding Researcher
Contribution 3	Converting Strain Release into Aromaticity Loss for Activation of Donor–Acceptor Cyclopropanes: Generation of Quinone Methide Traps for C-Nucleophiles	5	8 CFR 204.5(i)(3) — Outstanding Researcher