Citation Evidence Report

EB-1A Petition — Original Contributions of Major Significance

8 CFR § 204.5(h)(3)(v) · Criterion 5

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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 Criterion 5 (original contributions of major significance). 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

13	15	3	208
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 9 classified citing papers

Citation type	Count
Independent	9
Self-citation	0
Co-author	0
Same-institution	0

4 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 and systematically tested the M06 suite of density functionals, establishing a robust framework for modeling main group thermochemistry, kinetics, noncovalent interactions, and transition elements.

The researcher's primary contribution is the development of the M06 suite of density functionals, detailed in a seminal 2008 paper published in Theoretical Chemistry Accounts. This work introduced new functionals and provided a systematic testing framework for four M06-class functionals alongside twelve others, specifically targeting main group thermochemistry, thermochemical kinetics, noncovalent interactions, excited states, and transition elements.

This line of work appears to address the need for reliable computational tools capable of accurately modeling diverse chemical phenomena, from noncovalent interactions to transition metal chemistry. By systematically testing multiple functionals, the researcher provided a comprehensive benchmark that likely helped clarify the strengths and limitations of various density functional approaches for these complex systems.

The significance of this contribution is evidenced by its extensive uptake in the scientific community, with the core paper accumulating over 33,000 citations. Notably, analysis of citing literature indicates that 100% of the classified citations originate from independent researchers, suggesting that the M06 suite has become a widely adopted standard tool across the broader field of theoretical chemistry, rather than being confined to the researcher's immediate circle.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 3

CORE PAPER

The M06 suite of density functionals for main group thermochemistry, thermochemical kinetics, noncovalent interactions, excited states, and transition elements: two new functionals and systematic testing of four M06-class functionals and 12 other functionals

2008 · Theoretical Chemistry Accounts · 33,919 citations (GS)

Field-normalised: 25,607 Semantic Scholar citations place it in the top 1% of Chemistry papers from 2008 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Best-practice DFT protocols for basic molecular computational chemistry	—	—	—
2	Simple, Efficient, and Universal Energy Decomposition Analysis Method Based on Dispersion-Corrected Density Functional Theory (2023)	Beijing Kein Research Center for Natural Sciences	China	—
3	Injectable, self-healing hydrogel adhesives with firm tissue adhesion and on-demand biodegradation for sutureless wound closure (2023)	Changchun Institute of Applied Chemistry, Chinese Academy of Sciences, The Second Hospital of Jilin University	China	—

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 density functionals with broad applicability in chemistry, establishing a foundational framework that has been extensively adopted by the independent scientific community.

The researcher's primary contribution is the development of density functionals designed for broad applicability in chemistry, as detailed in the seminal 2008 paper published in Accounts of Chemical Research. This work stands as a core reference in the field, with no subsequent follow-up papers by the same researcher listed in this specific line of inquiry, suggesting the original publication itself constitutes the definitive contribution.

This line of work appears to address the need for versatile computational tools capable of handling diverse chemical systems. By focusing on broad applicability, the researcher likely aimed to overcome limitations of more specialized functionals, offering a robust methodological advance that simplifies complex chemical modeling without sacrificing accuracy across different contexts.

The significance of this contribution is evidenced by its substantial citation count of over 8,000, indicating widespread adoption and influence. Furthermore, analysis of citing papers reveals that 100% of the classified citations originate from independent researchers, underscoring the work's broad impact beyond the researcher's immediate circle and confirming its status as a widely utilized standard in the field.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 4

CORE PAPER

Density Functionals with Broad Applicability in Chemistry

2008 · Accounts of Chemical Research · 8,092 citations (GS)

Field-normalised: 6,147 Semantic Scholar citations place it in the top 1% of Chemistry papers from 2008 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Halogenated Zn^{2+} Solvation Structure for Reversible Zn Metal Batteries (2022)	Nankai University	China	—
2	Challenges for Density Functional Theory (2012)	Duke University, Universidad Autónoma de Madrid, University of Cambridge	Spain, United Kingdom, United States	—
3	Density functional theory with London dispersion corrections (2011)	Rheinische Friedrich-Wilhelms-Universität Bonn	Germany	—
4	Injectable, self-healing hydrogel adhesives with firm tissue adhesion and on-demand biodegradation for sutureless wound closure (2023)	Changchun Institute of Applied Chemistry, Chinese Academy of Sciences, The Second Hospital of Jilin University	China	**Methodology**

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).

Citing-text excerpts — how the field used this work

METHODOLOGY Injectable, self-healing hydrogel adhesives with firm tissue adhesion and on-demand biodegradation for sutureless wound closure

"Solvent effect was also considered by computing single point energy with the M062x/6311++G(d,p) method (78, 79) and the SMD solvation model (80) on each optimized structure."

Contribution 3

Claim — Contribution 3

The researcher developed a universal solvation model integrating solute electron density with continuum solvent definitions based on bulk dielectric constants and atomic surface tensions.

The researcher's primary contribution is the development of a universal solvation model, detailed in a 2009 paper published in The Journal of Physical Chemistry B. This work integrates solute electron density with a continuum model of the solvent defined by bulk dielectric constants and atomic surface tensions. As no follow-up papers by the researcher are listed, this core publication stands as the definitive statement of this specific methodological advancement.

This line of work appears to address the need for a unified approach to solvation modeling. By combining electron density with continuum solvent parameters, the research suggests a novel framework for calculating solvation effects that bridges electronic structure and macroscopic solvent properties. The title indicates a move toward a more generalizable model compared to previous, potentially more specialized, approaches.

The significance of this contribution is evidenced by its extensive uptake in the scientific community, with the core paper accumulating 19,485 citations. Furthermore, analysis of citing literature reveals that 100% of the classified citations originate from independent researchers, indicating that the work has been widely adopted and utilized by the broader field beyond the researcher's immediate circle.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 4

CORE PAPER

Universal Solvation Model Based on Solute Electron Density and on a Continuum Model of the Solvent Defined by the Bulk Dielectric Constant and Atomic Surface Tensions

2009 · The Journal of Physical Chemistry B · 19,485 citations (GS)

Field-normalised: 14,122 Semantic Scholar citations place it in the top 1% of Chemistry papers from 2009 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Best-practice DFT protocols for basic molecular computational chemistry	—	—	—
2	The ORCA quantum chemistry program package (2020)	FAccTs GmbH, Max Planck Institut für Kohlenforschung	Germany	—
3	Homogeneous and mechanically stable solid–electrolyte interphase enabled by trioxane-modulated electrolytes for lithium metal batteries (2023)	Beijing Institute of Technology, Chinese Academy of Sciences; University of Chinese Academy of Sciences, Tsinghua University	China	—
4	A photoluminescent hydrogen-bonded biomass aerogel for sustainable radiative cooling (2024)	Sichuan University	China	—

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
Universidad Autónoma de Madrid	Spain	SCImago #536 · QS 206	1

Institution	Country	World ranking	Citing papers
Chinese Academy of Sciences; University of Chinese Academy of Sciences	China	—	1
The Second Hospital of Jilin University	China	—	1
Nankai University	China	SCImago #347 · THE 251–300 · QS =355	1
University of Cambridge	United Kingdom	SCImago #63 · THE =3 · QS 6	1
Sichuan University	China	SCImago #32 · THE 201–250 · QS =324	1
Beijing Institute of Technology	China	SCImago #170 · THE 201–250 · QS =259	1
Changchun Institute of Applied Chemistry, Chinese Academy of Sciences	China	SCImago #872	1
Tsinghua University	China	SCImago #8 · THE 12 · QS =17	1
Beijing Kein Research Center for Natural Sciences	China	—	1
Max Planck Institut für Kohlenforschung	Germany	SCImago #455	1
FAccTs GmbH	Germany	—	1
Rheinische Friedrich-Wilhelms-Universität Bonn	Germany	SCImago #676 · THE =92 · QS =207	1
Duke University	United States	SCImago #115 · THE 28 · QS 62	1
University of Electronic Science and Technology of China	China	SCImago #129 · THE 301–350 · QS =519	1

Geographic distribution of citing authors

Country	Citing papers
China	5
Germany	2
Spain	1
United Kingdom	1
United States	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	The M06 suite of density functionals for main group thermochemistry, thermochemical kinetics, noncovalent interactions, excited states, and transition elements: two new functionals and systematic testing of four M06-class functionals and 12 other functionals	3	8 CFR 204.5(h)(3)(v) — Criterion 5
Contribution 2	Density Functionals with Broad Applicability in Chemistry	4	8 CFR 204.5(h)(3)(v) — Criterion 5
Contribution 3	Universal Solvation Model Based on Solute Electron Density and on a Continuum Model of the Solvent Defined by the Bulk Dielectric Constant and Atomic Surface Tensions	4	8 CFR 204.5(h)(3)(v) — Criterion 5