# 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

| 5 | 5 | 1 | 56 |
|---|---|---|---|
| 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 5 classified citing papers

| Citation type | Count |
|---|---|
| Independent | 5 |
| 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 pioneered the dual application of CeO2 nanoparticles as chemi-sensors and photocatalysts for environmental remediation, establishing a foundational framework for nanomaterial-based environmental monitoring and treatment.*

The researcher's significant contribution centers on the seminal 2011 publication in Science of the Total Environment, which explored the dual utility of cerium dioxide nanoparticles as both chemi-sensors and photocatalysts. This work stands as a core pillar of the researcher's portfolio, addressing the critical need for efficient, multifunctional nanomaterials in environmental applications. By investigating these specific properties, the research appears to have bridged the gap between sensing technologies and catalytic remediation strategies.

The originality of this line of work lies in its integrated approach to environmental nanotechnology. Rather than treating sensing and catalysis as separate domains, the researcher's titles suggest a novel examination of how CeO2 nanoparticles can serve both functions simultaneously. This dual-purpose framework likely offered a more streamlined and cost-effective solution for environmental monitoring and pollution control, distinguishing it from single-function material studies prevalent at the time.

The significance of this contribution is evidenced by its substantial citation count of 332, indicating widespread recognition and utility within the scientific community. Notably, analysis of citing papers reveals that 100% of the classified citations originate from independent researchers, rather than the author's own network. This high degree of independent uptake underscores the work's broad impact and its role as a foundational reference for other scientists exploring nanomaterial applications in environmental science.

**INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 5**

**CORE PAPER**

### Exploration of $CeO_2$ nanoparticles as a chemi-sensor and photo-catalyst for environmental applications

2011 · Sci Total Environ. (Science of the Total Environment) · 332 citations (GS)

Field-normalised: 270 Semantic Scholar citations place it in the top 5% of Chemistry papers from 2011 indexed by Semantic Scholar, by citation count.

| No. | Citing paper | Citing institution(s) | Country | S2 |
|---|---|---|---|---|
| 1 | Advancements in nanomaterials for nanosensors: a comprehensive review (2024) | Tanta University, Zagazig University | Egypt | — |
| 2 | Nanostructured materials for photocatalysis (2019) | CNRS, Univ. Bordeaux, Bordeaux INP, Universidad de Cordoba, Zhengzhou University of Light Industry | China, France, Spain | — |
| 3 | Pollution, Toxicity and Carcinogenicity of Organic Dyes and their Catalytic Bio-Remediation (2019) | — | — | — |
| 4 | Metal Oxides Nanoparticles: General Structural Description, Chemical, Physical, and Biological Synthesis Methods, Role in Pesticides and Heavy Metal Removal through Wastewater Treatment (2023) | — | — | — |
| 5 | Synthesis of cerium oxide nanoparticles using Gloriosa superba L. leaf extract and their structural, optical and antibacterial properties (2015) | Alagappa University, Jamal Mohamed College | 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 |
|---|---|---|---|
| Tanta University | Egypt | SCImago #4228 · THE 1001–1200 · QS 1201-1400 | 1 |
| Zhengzhou University of Light Industry | China | SCImago #4003 | 1 |
| Zagazig University | Egypt | SCImago #2907 · THE 1001–1200 · QS 1201-1400 | 1 |
| CNRS, Univ. Bordeaux, Bordeaux INP | France | — | 1 |
| Universidad de Cordoba | Spain | SCImago #2257 · QS 951-1000 | 1 |
| Alagappa University | India | SCImago #5061 · THE 801–1000 | 1 |
| Jamal Mohamed College | India | — | 1 |

### Geographic distribution of citing authors

| Country | Citing papers |
|---|---|
| China | 1 |
| Egypt | 1 |
| France | 1 |
| India | 1 |
| Spain | 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 | Exploration of $CeO_2$ nanoparticles as a chemi-sensor and photo-catalyst for environmental applications | 5 | 8 CFR 204.5(h)(3)(v) — Criterion 5 |