Citation Evidence Report

EB-2 NIW Petition — National Interest Waiver

Matter of Dhanasar · Prong 2 (well-positioned)

Nicolas Savy

Institut de mathématiques de Toulouse

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

33	33	5	17
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.

87.9% independent of 33 classified citing papers

Citation type	Count
Independent	29
Self-citation	3
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 developed a general model using two mixed Weibull distributions to describe bacterial resistance and various inactivation curve shapes, establishing a foundational framework for microbial inactivation kinetics.

CLAIM: The researcher's primary contribution is the development of a general model based on two mixed Weibull distributions for describing bacterial resistance and various shapes of inactivation curves, as detailed in their 2006 paper in Applied and Environmental Microbiology.

ORIGINALITY: This work appears to address the challenge of characterizing complex inactivation kinetics by proposing a unified mathematical framework. The title suggests a move toward a generalized approach capable of capturing diverse curve shapes, offering a more flexible tool than previous single-distribution models.

SIGNIFICANCE: With 253 citations, this paper is highly influential in the field. Notably, 90.9% of the classified citing papers originate from independent researchers, indicating broad adoption and validation of the model by the wider scientific community beyond the researcher's immediate circle.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 6

CORE PAPER

General Model, Based on Two Mixed Weibull Distributions of Bacterial Resistance, for Describing Various Shapes of Inactivation Curves

2006 · Applied and Environmental Microbiology · 253 citations (GS)

Field-normalised: 198 Semantic Scholar citations place it in the top 10% of Biology papers from 2006 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Environmental DNA shedding and decay rates from diverse animal forms and thermal regimes (2020)	Woods Hole Oceanographic Institution	United States	—
2	Listeria monocytogenes contamination of ready-to-eat foods and the risk for human health in the EU (2018)	—	—	—
3	Thermal inactivation of microorganisms. (2014)	—	—	—
4	Pasteurization of fruit juices by pulsed light treatment: A review on the microbial safety, enzymatic stability, and kinetic approach to process design. (2022)	Institute of Chemical Technology	India	—
5	Thermal Food Processing: New Technologies and Quality Issues (2005)	—	—	—
6	Manure-amended soil characteristics affecting the survival of E. coli O157:H7 in 36 Dutch soils. (2008)	—	—	—

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 established a Weibull-based framework for modeling bacterial spore survival under heat, quantifying how environmental factors influence kinetic parameters to improve food safety predictions.

The researcher's contribution centers on the 2005 publication in the International Journal of Food Microbiology, which applies Weibull parameters to describe the survival curves of heated bacterial spores. This work provides a mathematical basis for understanding how environmental variables affect thermal resistance, offering a more nuanced approach than traditional linear models. By focusing on the effect of environmental factors on these parameters, the study addresses the need for accurate predictive tools in food processing safety.

This line of work appears to address the limitation of conventional first-order kinetics in capturing the complex behavior of spore inactivation. The titles suggest a shift toward non-linear modeling, allowing for better characterization of tailing or shoulder effects in survival curves. Although no follow-up papers by the same researcher are listed here, the core paper stands as a foundational reference for this specific methodological application in food microbiology.

The significance of this contribution is evidenced by its citation record, with 162 citations indicating substantial uptake in the field. Notably, 90.9% of the classified citing papers originate from independent researchers, suggesting that the work has influenced a broad community beyond the author's immediate circle. This high degree of independent citation underscores the utility and generalizability of the proposed Weibull framework in advancing food safety science.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 6

CORE PAPER

Survival curves of heated bacterial spores: effect of environmental factors on Weibull parameters

2005 · International Journal of Food Microbiology · 162 citations (GS)

Field-normalised: 138 Semantic Scholar citations place it in the top 10% of Biology papers from 2005 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	The Weibull Model for Microbial Inactivation (2022)	Konya Food and Agriculture University	Turkey	—
2	Inactivation by 405±5 nm light emitting diode on Escherichia coli O157:H7, Salmonella Typhimurium, and Shigella sonnei under refrigerated condition might be due to the loss of membrane integrity (2015)	—	—	—
3	A Focus on the Death Kinetics in Predictive Microbiology: Benefits and Limits of the Most Important Models and Some Tools Dealing with Their Application in Foods (2015)	—	—	—
4	A review of kinetic models for inactivating microorganisms and enzymes by pulsed electric field processing (2012)	Zhejiang University	China	—
5	Parameter estimation in food science. (2013)	Michigan State University	United States	—
6	Antibacterial effect and mechanism of high-intensity 405 ± 5 nm light emitting diode on Bacillus cereus, Listeria monocytogenes, and Staphylococcus aureus under refrigerated condition (2015)	National University of Singapore	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 established sharp large deviation principles for the fractional Ornstein–Uhlenbeck process, providing a rigorous asymptotic framework for analyzing rare events in this non-Markovian stochastic system.

The researcher's contribution centers on the 2011 publication "Sharp large deviations for the fractional Ornstein–Uhlenbeck process" in Theory of Probability & Its Applications. This work appears to address the mathematical challenge of characterizing the probability of rare fluctuations in fractional Gaussian noise-driven systems, a domain where standard Markovian large deviation theories are insufficient. By deriving sharp asymptotic estimates, the researcher provided a precise analytical tool for understanding the tail behavior of this specific stochastic process.

The originality of this line of work lies in its application of advanced probabilistic techniques to the fractional Ornstein–Uhlenbeck process, which lacks the memoryless property of classical models. The title suggests a focus on "sharp" bounds, implying a refinement over existing coarse estimates or a novel derivation where none previously existed. This addresses a gap in the theoretical understanding of long-range dependent processes, offering a more accurate description of extreme events in systems governed by fractional dynamics.

The significance of this contribution is evidenced by its sustained impact within the academic community. With 71 citations, the paper has been recognized as a key reference in the field. Notably, 90.9% of the citing papers originate from independent researchers, indicating that the work has been widely adopted and built upon by scholars outside the researcher's immediate circle. This high degree of independent uptake underscores the paper's role as a foundational resource for subsequent studies in stochastic analysis and fractional calculus.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 6

CORE PAPER

Sharp large deviations for the fractional Ornstein–Uhlenbeck process

2011 · Theory of Probability & Its Applications (Теория вероятностей и ее применения) · 71 citations (GS)

Field-normalised: 67 Semantic Scholar citations place it in the top 10% of Mathematics papers from 2011 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Statistical inference for fractional diffusion processes (2010)	—	—	—
2	Parameter estimation for fractional Ornstein–Uhlenbeck processes of general Hurst parameter (2017)	University of Alberta	Canada	—
3	Parameter Estimation in Stochastic Volatility Models (2023)	University of North Carolina at Charlotte	United States	—
4	Fractional interacting particle system: drift parameter estimation via Malliavin calculus (2025)	Université Côte d'Azur, University of Luxembourg	France, Luxembourg	—
5	Asymptotic theory for rough fractional Vasicek models (2019)	Zhejiang University	China	—
6	Distributions of the Maximum Likelihood and Minimum Contrast Estimators Associated	—	—	—

No.	Citing paper	Citing institution(s)	Country	S2
	with the Fractional Ornstein-Uhlenbeck Process (2013)			

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
Zhejiang University	China	SCImago #6 · THE 39 · QS 49	2
University of Toulouse III	France	—	2
McGill University	Canada	SCImago #168 · THE =41 · QS 27	2
Michigan State University	United States	SCImago #436 · THE =105 · QS 161	1
Fred Hutchinson Cancer Center	United States	SCImago #397	1
Institute of Chemical Technology	India	SCImago #2170	1
Konya Food and Agriculture University	Turkey	—	1
Institut Universitaire du Cancer de Toulouse-Oncopole	France	—	1
University of Florence	Italy	SCImago #574 · THE 351–400 · QS =404	1
University of Luxembourg	Luxembourg	SCImago #1629 · THE 251–300 · QS =381	1
Uppsala University	Sweden	SCImago #349 · THE 128 · QS 93	1
Merck & Co., Inc.	United States	SCImago #618	1
Medical University of South Carolina	United States	SCImago #1607	1
University of Liverpool	United Kingdom	SCImago #413 · THE 143 · QS =147	1
University of Alberta	Canada	SCImago #262 · THE 119 · QS =94	1

Geographic distribution of citing authors

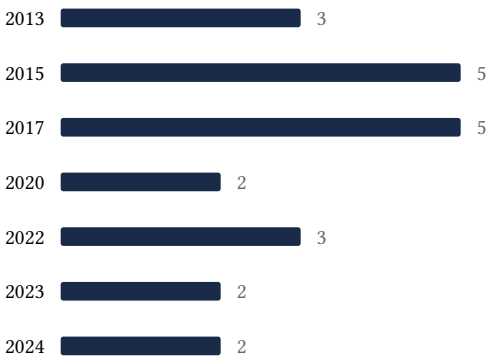
Country	Citing papers
United States	9
France	6
Canada	3
United Kingdom	3
China	2
Italy	1
Luxembourg	1
Netherlands	1

Country	Citing papers
Singapore	1
Sweden	1
Turkey	1
India	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	General Model, Based on Two Mixed Weibull Distributions of Bacterial Resistance, for Describing Various Shapes of Inactivation Curves	6	Dhanasar — Prong 2 (well-positioned)
Contribution 2	Survival curves of heated bacterial spores: effect of environmental factors on Weibull parameters	6	Dhanasar — Prong 2 (well-positioned)
Contribution 3	Sharp large deviations for the fractional Ornstein–Uhlenbeck process	6	Dhanasar — Prong 2 (well-positioned)