Citation Evidence Report

EB-2 NIW Petition — National Interest Waiver

Matter of Dhanasar · Prong 2 (well-positioned)

Zhi-Qiang Lee

National Tsing Hua University

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

90	146	21	9
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.

52.9% independent of 17 classified citing papers

Citation type	Count
Independent	9
Self-citation	1
Co-author	7
Same-institution	0

73 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 framework for optimizing electromechanical coupling and suppressing Rayleigh modes in SH-SAW resonators, extending this approach to high-performance L-band and wideband devices.

The researcher's core contribution centers on the 2023 paper regarding acoustic dispersions in YX-LN/SiO2/Si SH-SAW resonators. This work established a method for electromechanical coupling optimization and Rayleigh mode suppression, serving as the foundation for subsequent advancements in surface acoustic wave technology.

This line of work appears to address the challenge of improving resonator performance through dispersion engineering. The originality lies in the systematic application of these principles, which the researcher expanded in 2024 to include L-band LiNbO3/SiO2/Sapphire longitudinal leaky SAW resonators and spectrum-clean wideband SH-SAW resonators with crossed interdigital transducers.

The significance of this research is evidenced by its citation record. The core paper has received 19 citations, while the two follow-up papers have garnered 18 and 16 citations respectively. Notably, over half of the citing papers originate from independent researchers, suggesting that this work has been adopted by the broader scientific community beyond the researcher's immediate circle.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 6 · **1 flagged influential by Semantic Scholar**

CORE PAPER

Harnessing Acoustic Dispersions in YX-LN/SiO2/Si SH-SAW Resonators for Electromechanical Coupling Optimization and Rayleigh Mode Suppression

2023 · IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control 70 ..., 2023 · 19 citations (GS)

No.	Citing paper	Citing institution(s)	Country	S2
1	Large bandwidth low-spurious SAW filter for N78 band	Nankai University, Tianjin University of Technology	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).

FOLLOW-UP WORK

L-Band LiNbO3/SiO2/Sapphire Longitudinal Leaky Saw (LLSAW) Resonators with High Figure of Merit

2024 · 2024 IEEE 37th International Conference on Micro Electro Mechanical Systems ..., 2024 · 18 citations (GS)

No.	Citing paper	Citing institution(s)	Country	S2
1	SV-SAW RF filters based on low-cost 128°Y LiNbO3/SiO2/poly-Si/Si substrate for 6G cmWave wireless communications	University of Science and Technology of China	China	—
2	A bulk acoustic resonator with vertical electrodes for wideband filters	École Polytechnique Fédérale de Lausanne, Universitat Politècnica de Catalunya	Spain, Switzerland	**Influential**

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

Spectrum-Clean Dispersion-Engineered YX-LN/SiO_2/Si Wideband SH-SAW Resonators With Crossed Interdigital Transducers

2024 · IEEE Transactions on Electron Devices 71 (6), 3880-3887, 2024 · 16 citations (GS)

No.	Citing paper	Citing institution(s)	Country	S2
1	Large bandwidth low-spurious SAW filter for N78 band	Nankai University, Tianjin University of Technology	China	—
2	High-Quality STW Resonators: Calculation Methods and Application in Self-Oscillators	LLC AEC-Design, St. Petersburg State Electrotechnical University LETI	Russia	—
3	The high-Q STW resonators. Calculation methods and application in self-oscillators	AEC Design, St. Petersburg State Electrotechnical University “LETI”, ООО "АЭК Дизайн"	Russia, Россия	—

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 low-loss acoustic delay lines using YX-LiNbO3/SiO2/Sapphire, advancing SAW device performance through composite waveguide modes and cryogenic characterization.

The researcher established a foundational contribution in acoustic wave technology with the 2023 paper on low propagation loss delay lines based on YX-LiNbO3/SiO2/Sapphire. This core work serves as the basis for subsequent advancements in the field.

This line of work appears to address the challenge of minimizing signal loss in surface acoustic wave devices. The follow-up papers suggest an expansion into specific operational regimes, including 6 GHz applications using non-leaky composite waveguide modes and performance evaluation under cryogenic conditions, indicating a systematic approach to optimizing device efficiency and environmental robustness.

The significance of this research is evidenced by its uptake in the scientific community. The core paper has garnered 11 citations, while the follow-up studies have received 11 and 5 citations respectively. Notably, over half of the citing papers originate from independent researchers, suggesting that this work has influenced broader academic inquiry beyond the researcher's immediate circle.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 2

CORE PAPER

Low Propagation Loss Acoustic Delay Lines based on YX-LiNbO3/SiO2/Sapphire

2023 · 2023 IEEE International Ultrasonics Symposium (IUS), 1-4, 2023 · 11 citations (GS)

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

FOLLOW-UP WORK

6 GHz lithium niobate on insulator low-loss SAW delay line adapting non-leaky composite waveguide mode

2025 · 2025 IEEE 38th International Conference on Micro Electro Mechanical Systems ..., 2025 · 5 citations (GS)

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

FOLLOW-UP WORK

Cryogenic characterization of low-loss thin-film lithium niobate on sapphire shear horizontal surface acoustic wave devices

2024 · IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control, 2024 · 11 citations (GS)

No.	Citing paper	Citing institution(s)	Country	S2
1	Piezoelectric-Metal Phononic Crystal Enabling GHz Tunable Ultrahigh Q Quasi-BIC Mode	ShanghaiTech University	China	—
2	Loss investigations of high-frequency lithium niobate Lamb wave resonators at ultralow temperatures	Purple Mountain Laboratories, Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences; University of Chinese Academy of Sciences, ShanghaiTech 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 3

Claim — Contribution 3

The researcher established gold as a viable electrode material for LNOI SH-SAW resonators and advanced mmWave performance through mode suppression techniques.

The researcher's core contribution centers on the 2024 study identifying gold as a promising electrode material for LiNbO3-on-Insulator (LNOI) SH-SAW resonators. This foundational work is supported by subsequent 2025 publications that extend the research toward mmWave applications on silicon carbide and address transverse mode suppression via piston-mode and meshed busbars.

This line of work appears to address critical challenges in high-frequency acoustic wave device fabrication. By moving from material validation to specific engineering solutions for mode suppression and substrate integration, the researcher demonstrates a systematic approach to optimizing LNOI resonator performance for advanced telecommunications applications.

The significance of this contribution is evidenced by 10 citations of the core paper, with over half originating from independent researchers. This external uptake suggests the work has provided a useful reference point for the broader scientific community exploring next-generation surface acoustic wave technologies.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 2

CORE PAPER

Gold as a Promising Electrode Material for LiNbO3-on-Insulator (LNOI) SH-SAW Resonators: An Experimental Study

2024 · IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control 71 …, 2024 · 10 citations (GS)

No.	Citing paper	Citing institution(s)	Country	S2
1	SV-SAW RF filters based on low-cost 128°Y LiNbO3/SiO2/poly-Si/Si substrate for 6G cmWave wireless communications	University of Science and Technology of China	China	—

No.	Citing paper	Citing institution(s)	Country	S2
2	Acoustic Wave Engineering of Lamb Wave Resonators with 2D van der Waals Floating Electrode	Pohang University of Science and Technology	South Korea	—

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

Toward mmWave Surface Acoustic Wave Resonators in Lithium Niobate on Silicon Carbide

2025 · IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control, 2025 · 0 citations (GS)

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

FOLLOW-UP WORK

Transverse Mode Suppression in LNOI SH-SAW Resonators via Piston-Mode and Meshed Busbars

2025 · IEEE Microwave and Wireless Technology Letters, 2025 · 0 citations (GS)

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

D. Citing-Institution Prestige & Geography

Top citing institutions

Institution	Country	World ranking	Citing papers
The University of Texas at Austin	United States	THE 50 · QS 68	6
National Tsing Hua University	Taiwan	SCImago #1590 · THE 401–500	3
University of Pennsylvania	United States	SCImago #52 · THE 14 · QS 15	2
ShanghaiTech University	China	SCImago #758	2
University of Texas at Austin	United States	THE 50 · QS 68	2
Санкт-Петербургский государственный электротехнический университет "ЛЭТИ" им. В.И. Ульянова (Ленина)	Россия	—	1
Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences; University of Chinese Academy of Sciences	China	—	1
La Luce Cristallina, Inc.	United States	—	1
Pohang University of Science and Technology	South Korea	SCImago #1045 · THE =141 · QS 102	1
Purple Mountain Laboratories	China	—	1
Nankai University	China	SCImago #347 · THE 251–300 · QS =355	1
University of Science and Technology of China	China	SCImago #77 · THE 51 · QS =132	1

Institution	Country	World ranking	Citing papers
Universitat Politècnica de Catalunya	Spain	SCImago #624 · THE 601–800	1
Northeastern University	United States	QS 384	1
École Polytechnique Fédérale de Lausanne	Switzerland	SCImago #393 · THE 35	1

Geographic distribution of citing authors

Country	Citing papers
United States	9
China	4
Taiwan	3
Russia	2
Россия	1
South Korea	1
Spain	1
Switzerland	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.

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	Harnessing Acoustic Dispersions in YX-LN/SiO2/Si SH-SAW Resonators for Electromechanical Coupling Optimization and Rayleigh Mode Suppression	6	Dhanasar — Prong 2 (well-positioned)
Contribution 2	Low Propagation Loss Acoustic Delay Lines based on YX-LiNbO3/SiO2/Sapphire	2	Dhanasar — Prong 2 (well-positioned)
Contribution 3	Gold as a Promising Electrode Material for LiNbO3-on-Insulator (LNOI) SH-SAW Resonators: An Experimental Study	2	Dhanasar — Prong 2 (well-positioned)