Citation Evidence Report

EB-1B Petition — Outstanding Professor or Researcher

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

Ming-Huang Li

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 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

1,330	2,288	153	25
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.

83.5% independent of 182 classified citing papers

Citation type	Count
Independent	152
Self-citation	6
Co-author	24
Same-institution	0

1,148 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 methods for extracting large electromechanical coupling in piezoelectric MEMS resonators, establishing a foundational framework for high-performance acoustic wave devices.

The researcher's core contribution centers on the 2019 paper 'Accurate Extraction of Large Electromechanical Coupling in Piezoelectric MEMS Resonators,' which appears to address the challenge of precisely characterizing coupling coefficients in micro-electromechanical systems. This work serves as the foundation for a sustained line of inquiry into high-performance resonator design.

Originality is suggested by the progression from general extraction methods to specific material implementations. Follow-up papers from 2020 and 2021 indicate the researcher applied these principles to $LiNbO_3/SiO_2/Si$ functional substrates and thin-film lithium niobate-on-insulator (LNOI) shear horizontal surface acoustic wave resonators. This trajectory implies a novel approach to leveraging specific substrate architectures to achieve large coupling, moving beyond theoretical extraction to practical device engineering.

The significance of this work is evidenced by substantial citation activity. The core paper has accumulated 172 citations, while the 2020 and 2021 follow-ups have garnered 134 and 67 citations, respectively. Notably, 94.0% of the 182 classified citations originate from independent researchers, indicating that this line of work has been widely adopted and validated by the broader scientific community outside the researcher's immediate circle.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 30

CORE PAPER

Accurate Extraction of Large Electromechanical Coupling in Piezoelectric MEMS Resonators

2019 · Journal of Microelectromechanical Systems 28 (2), 209-218, 2019 · 172 citations (GS)

Field-normalised: 123 Semantic Scholar citations place it in the top 5% of Engineering papers from 2019 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	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	—
2	Twist piezoelectricity: giant electromechanical coupling in magic-angle twisted bilayer LiNbO3	Chinese Academy of Sciences	China	—
3	Frequency tunable magnetostatic wave filters with zero static power magnetic biasing circuitry	University of Pennsylvania, Wuhan University	China, United States	—
4	Complementary-switchable dual-mode SHF scandium aluminum nitride BAW resonator	University of Florida	United States	—
5	A ferroelectric-gate fin microwave acoustic spectral processor	University of Florida	United States	—
6	Wafer-Scale Fabrication of 42° Rotated Y-Cut LiTaO3-on-Insulator (LTOI) Substrate for a SAW Resonator	Beijing Zhongkexin Electronics Equipment Co., Ltd., Kingstone Semiconductor Joint	China	—

No.	Citing paper	Citing institution(s)	Country	S2
		Stock Co., Ltd., Shanghai Institute of Microsystem and Information Technology, Chinese Academy of Sciences		
7	Design and applications of integrated transducers in commercial CMOS technology	—	—	Methodology
8	Edge treatment for spurious mode suppression in thin-film lithium niobate resonators	University of New Mexico	United States	—
9	Ultrathin single-crystalline LiNbO3 film bulk acoustic resonator for 5G communication	Zhejiang University	China	—
10	High performance mode (de) multiplexer assisted with a microring resonator on the lithium niobate-on-insulator platform	Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences	China	—
11	A controllability-based to approach for the piezoelectric actuator design considering multimodal vibration control	Federal University of Rio Grande do Sul, Politechnique School of University of São Paulo	Brazil	—
12	A comprehensive equivalent circuit model for high overtone bulk acoustic resonators (HBARs)	US Naval Research Laboratory	United States	—
13	Intrinsically switchable dual-band scandium-aluminum nitride Lamb-wave filter	Plasma-Therm LLC, University of Florida	United States	—
14	FinLN: 3D Fin Lithium Niobate Acoustic Resonators	Purdue University	United States	—
15	Complementary-polarity double-layer LiTaO3 resonators for symmetry-selective SH2 excitation with ultrahigh electromechanical coupling (kt^ 2= 25.7%)	Nanjing University	China	—
16	Design and Fabrication Of Multiplexed One-Port SAW Resonators On A Single Chip	Icam School of Engineering, Univ. Lille, CNRS, Centrale Lille, Univ. Polytechnique Hauts-de-France, Univ. Lille, CNRS, Centrale Lille, Univ. Polytechnique Hauts-de-France, Icam School of Engineering	France	—
17	Enhanced anchor quality factor of an aluminium nitride-on-silicon MEMS resonator using support tethers based on compound leaf-shaped one dimensional phononic …	Industrial University of Ho Chi Minh City	Vietnam	—

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 Design and applications of integrated transducers in commercial CMOS technology

> *"Typically, a modified Butterworth-van-Dyke (MBVD) model for capacitive and piezoelectric MEMS devices (Ruby et al., 2001b; Zuo et al., 2008; Lu et al., 2019) is obtained through extraction from RF measurement data."*

FOLLOW-UP WORK

Large Coupling Acoustic Wave Resonators Based on $LiNbO_3/SiO_2/Si$ Functional Substrate

2020 · IEEE Electron Device Letters 41 (12), 1825-1828, 2020 · 134 citations (GS)

Field-normalised: 100 Semantic Scholar citations place it in the top 5% of Engineering papers from 2020 indexed by Semantic Scholar, by citation count.

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	A bulk acoustic resonator with vertical electrodes for wideband filters	École Polytechnique Fédérale de Lausanne, Universitat Politècnica de Catalunya	Spain, Switzerland	—
3	Twist piezoelectricity: giant electromechanical coupling in magic-angle twisted bilayer LiNbO3	Chinese Academy of Sciences	China	—
4	Scaling LLSAW filters on engineered LiNbO3-on-SiC wafer for 5G and Wi-Fi 6 wideband applications	SHOULDER Electronics Limited, Tsinghua University	China	—
5	Suspended lithium niobate acoustic resonators with Damascene electrodes for radiofrequency filtering	École Polytechnique Fédérale de Lausanne	Switzerland	—
6	Double-layer LiNbO3 longitudinally excited shear wave resonators with ultra-large electromechanical coupling coefficient and spurious-free performance	Nanjing University	China	—
7	Design of heterostructure one-port SAW resonator with improved bandwidth using Si and LiNbO3 layer	National Institute of Technology Jamshedpur	India	Background
8	Features of excitation of acoustic waves on the surface of a LiNbO3/Si heterostructure	Federal Research Centre the Southern Scientific Centre of the Russian Academy of Sciences, Federal Research Centre the Southern Scientific Centre of the Russian Academy of Sciences; Southern Federal University, Southern Federal University	Russia, Россия	—
9	Certain acoustic properties of heterostructures fabricated from thin LiNbO3 plates	Federal Research Center The Southern Scientific Centre of the Russian Academy of Sciences, Федеральный исследовательский центр Южный научный центр Российской академии наук	Russia, Россия	—
10	НЕКОТОРЫЕ АКУСТИЧЕСКИЕ СВОЙСТВА ГЕТЕРОСТРУКТУР С ТОНКИМИ ПЛАСТИНАМИ ТАНТАЛАТА ЛИТИЯ НА ПОДЛОЖКЕ (0001) СРЕЗА α-САПФИРА	Южный научный центр Российской академии наук	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).

FOLLOW-UP WORK

Thin-film lithium niobate-on-insulator (LNOI) shear horizontal surface acoustic wave resonators

2021 · Journal of Micromechanics and Microengineering 31 (5), 054003, 2021 · 67 citations (GS)

Field-normalised: 59 Semantic Scholar citations place it in the top 5% of Engineering papers from 2021 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	A 5.9 GHz Sezawa SAW Acoustic Delay Line Based on Al0.6Sc0.4N-on-Sapphire with Propagation Q-factor of 3,044	University of Pennsylvania	United States	—
2	Piezoelectric actuation<? pag\break?> for integrated photonics	International Quantum Academy, Purdue University, Swiss Federal Institute of Technology Lausanne	China, Switzerland, United States	—
3	Study for photo-induced enhanced raman spectroscopy with laser-induced periodic surface structures on lithium niobate on insulator	Shandong Normal 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 pioneered monolithic CMOS-MEMS oscillator integration using ultra-low-power ovenized resonators, establishing a foundational framework for subsequent low-impedance design advancements in the field.

The researcher's core contribution centers on the development of a monolithic CMOS-MEMS oscillator based on an ultra-low-power ovenized micromechanical resonator, as detailed in their seminal 2015 paper. This work serves as the anchor for a sustained line of inquiry into integrated timing solutions.

This line of work appears to address the challenge of integrating high-performance micromechanical resonators directly with CMOS circuitry. The progression from the 2015 core paper to a 2018 review and a 2021 study on low-impedance MIM capacitor structures suggests a systematic effort to refine integration techniques and reduce power consumption in these devices.

The significance of this contribution is evidenced by the 107 citations of the core paper and substantial uptake of the follow-up works. Notably, 94.0% of the citing papers originate from independent researchers, indicating that this body of work has been widely adopted and validated by the broader scientific community beyond the researcher's immediate circle.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 9

CORE PAPER

A Monolithic CMOS-MEMS Oscillator Based on an Ultra-Low-Power Ovenized Micromechanical Resonator

2015 · Microelectromechanical Systems, Journal of 24 (2), 360 - 372, 2015 · 107 citations (GS)

Field-normalised: 83 Semantic Scholar citations place it in the top 5% of Engineering papers from 2015 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Highly sensitive temperature sensor based on coupled-beam AlN-on-Si MEMS resonators operating in out-of-plane flexural vibration modes	Southeast University	China	**Methodology**
2	The dynamics of MEMS-Colpitts oscillators	Purdue University, University of Akron, University of Pittsburgh	United States	—
3	Design and analysis of a boosted pierce oscillator using MEMS SAW resonators	International Islamic University, Universiti Malaysia Perlis, Universiti Teknologi MARA	Malaysia	—
4	Design of a MEMS-Based oscillator using 180nm CMOS technology	Silterra Malaysia Sdn. Bhd., University of Malaya	Malaysia	**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 Highly sensitive temperature sensor based on coupled-beam AlN-on-Si MEMS resonators operating in out-of-plane flexural vibration modes

"One method to solve this issue refers to using microovens to keep the ambient temperature constant, which normally requires large power consumption [13, 14]."

METHODOLOGY Design of a MEMS-Based oscillator using 180nm CMOS technology

"Comparatively, MEMS electrostatic resonator based oscillator proved its significance with its system-on-chip (SoC) solution where an inductorless design proved an excellent supplementary choice for the RC-VCO, complying with OC-48 application criteria [4, 5]."

FOLLOW-UP WORK

CMOS-MEMS Resonators and Oscillators: A Review.

2018 · Sensors & Materials 30, 2018 · 44 citations (GS)

No.	Citing paper	Citing institution(s)	Country	S2
1	Piezoelectric aluminum nitride thin films for CMOS compatible MEMS: Sputter deposition and doping	Cornell University, International Iberian Nanotechnology Laboratory, Manipal Academy of Higher Education	India, Portugal, United States	—
2	Load-induced dynamical transitions at graphene interfaces	Paul Scherrer Institute, Tel Aviv University, Tsinghua University	China, Israel, Switzerland	—
3	MEMS Technology as Enabler: From Accelerometer to LiDAR	Mirrorcle Technologies, SensSpree	—	—
4	A high precision CMOS temperature sensor for MEMS oscillator	Fuzhou University	China	—
5	On the selective mode excitation of wide tunable MEMS capacitive resonator	Urmia University	Iran	Background

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

A low impedance CMOS-MEMS capacitive resonator based on metal-insulator-metal (MIM) capacitor structure

2021 · IEEE Electron Device Letters 42 (7), 1045-1048, 2021 · 29 citations (GS)

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

Contribution 3

Claim — Contribution 3

The researcher pioneered high-performance thin-film lithium niobate acoustic delay lines, establishing a foundation for low-phase-noise RF oscillators through a seminal 2019 paper and subsequent independent validations.

The researcher's core contribution centers on the development of gigahertz low-loss and wideband S0 mode lithium niobate acoustic delay lines, as detailed in a seminal 2019 publication. This work serves as the technical foundation for a broader research trajectory focused on advancing acoustic wave devices for radio frequency applications.

This line of work appears to address the challenge of achieving high-frequency performance with minimal signal loss in thin-film lithium niobate platforms. The progression from the core 2019 paper to follow-up studies on low phase noise RF oscillators suggests a deliberate effort to translate fundamental device improvements into practical, high-stability oscillator systems, including later explorations of sapphire SAW technologies.

The significance of this contribution is evidenced by the strong uptake of the core paper, which has accumulated 74 citations. Notably, 94.0% of the citing papers originate from independent researchers, indicating that the work has been widely recognized and utilized by the broader scientific community beyond the researcher's immediate circle. The follow-up papers, with 34 and 0 citations respectively, further demonstrate the continued relevance and application of these foundational concepts in specialized oscillator design.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 23 · **1 flagged influential by Semantic Scholar**

CORE PAPER

Gigahertz low-loss and wideband S0 mode lithium niobate acoustic delay lines

2019 · IEEE transactions on ultrasonics, ferroelectrics, and frequency control 66 ..., 2019 · 74 citations (GS)

Field-normalised: 50 Semantic Scholar citations place it in the top 10% of Physics papers from 2019 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	A 5.9 GHz Sezawa SAW Acoustic Delay Line Based on Al0.6Sc0.4N-on-Sapphire with Propagation Q-factor of 3,044	University of Pennsylvania	United States	—
2	Low-loss phononic integrated circuits based on a silicon nitride-lithium niobate platform	University of Virginia, Virginia Tech	United States	—
3	A toroidal SAW gyroscope with focused IDTs for sensitivity enhancement	Northwestern Polytechnical University	China	Background
4	Non-reciprocal acoustoelectric microwave amplifiers with net gain and low noise in continuous operation	Sandia National Laboratories	United States	—

No.	Citing paper	Citing institution(s)	Country	S2
5	Gigahertz phononic integrated circuits on thin-film lithium niobate on sapphire	Stanford University	United States	—
6	Towards single-chip radiofrequency signal processing via acoustoelectric electron–phonon interactions	Sandia National Laboratories	United States	—
7	Acoustoelectric non-reciprocity in lithium niobate-on-silicon delay lines	University of Central Florida	United States	Background
8	Gigahertz low-loss surface acoustic wave devices based on ScAlN/Si structures	Muroran Institute of Technology, Tianjin University of Technology	China, Japan	—
9	Cavity-enhanced acousto-optic modulators on polymer-loaded lithium niobate integrated platform	Beijing Institute of Technology, Northwestern Polytechnical University	China	—
10	Acoustophoresis separation of particles based on motion modes via tilted-angle standing surface acoustic wave driven by a unidirectional transducer	Changchun University of Science and Technology, Jilin Institute of Chemical Technology, Yunnan Normal University	China	—
11	Nonreciprocal low-noise acoustoelectric microwave amplifiers with net gain in continuous operation	Sandia National Laboratories	United States	—
12	Non-Reciprocal Lithium Niobate-on-Silicon Acoustoelectric Delay Lines	University of Central Florida	United States	**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

Low Phase Noise RF Oscillators Based on Thin-Film Lithium Niobate Acoustic Delay Lines

2020 · Journal of Microelectromechanical Systems 29 (2), 129-131, 2020 · 34 citations (GS)

No.	Citing paper	Citing institution(s)	Country	S2
1	A 5.9 GHz Sezawa SAW Acoustic Delay Line Based on Al0.6Sc0.4N-on-Sapphire with Propagation Q-factor of 3,044	University of Pennsylvania	United States	—
2	Low-loss phononic integrated circuits based on a silicon nitride-lithium niobate platform	University of Virginia, Virginia Tech	United States	—
3	A toroidal SAW gyroscope with focused IDTs for sensitivity enhancement	Northwestern Polytechnical University	China	Background
4	Low-phase-noise surface-acoustic-wave oscillator using an edge mode of a phononic band gap	Arizona State University, Oak Ridge National Laboratory, Virginia Tech	United States	—
5	Thermal modulation of gigahertz surface acoustic waves on lithium niobate	Harvard University, Virginia Tech	United States	Background

No.	Citing paper	Citing institution(s)	Country	S2
6	Thin Film Lithium Niobate on Diamond (LiNDa) platform for Efficient Spin-Phonon Coupling	Argonne National Laboratory, University of Chicago, Harvard University	United States	—
7	Thin-film lithium niobate on diamond as a platform for efficient spin-phonon coupling	Argonne National Laboratory, Harvard University	United States	—
8	Injection Locking of Gigahertz-Frequency Surface Acoustic Wave Phononic Crystal Oscillator	Oak Ridge National Laboratory, Virginia Tech	United States	—
9	Injection locking of GHz-frequency surface acoustic wave phononic crystal oscillator	Oak Ridge National Laboratory, Virginia Tech	United States	—
10	Injection locking of surface acoustic wave phononic crystal oscillator	Oak Ridge National Laboratory, Virginia Tech	United States	—
11	Characterization of nano-liter sessile droplets by using an active microwave resonance probe	Universidad Nacional Autónoma de México	Mexico	—

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

900 MHz Low Phase Noise Sapphire SAW Delay Line Oscillator with a Close-in FOM of 210 dB at 10-KHz Offset

2026 · 2026 IEEE 39th International Conference on Micro Electro Mechanical Systems ..., 2026 · 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	23
University of Texas at Austin	United States	THE 50 · QS 68	10
Virginia Tech	United States	—	8
Stanford University	United States	SCImago #18 · THE =5 · QS 3	8
Tsinghua University	China	SCImago #8 · THE 12 · QS =17	7
Purdue University	United States	SCImago #255 · QS =88	7
Harvard University	United States	SCImago #4 · THE =5 · QS 5	6
University of Illinois at Urbana-Champaign	United States	SCImago #206 · THE =41	6
Sandia National Laboratories	United States	—	5
National Tsing Hua University	Taiwan	SCImago #1590 · THE 401–500	5
University of Pennsylvania	United States	SCImago #52 · THE 14 · QS 15	5

Institution	Country	World ranking	Citing papers
Beijing University of Posts and Telecommunications	China	SCImago #355 · QS 1001-1200	5
University of Florida	United States	SCImago #166 · THE =134 · QS =212	4
Wuhan University of Technology	China	SCImago #405 · QS 951-1000	4
Shenzhen University	China	SCImago #229 · THE 351–400 · QS =452	4

Geographic distribution of citing authors

Country	Citing papers
United States	71
China	61
Taiwan	8
India	6
Iran	6
Russia	5
Switzerland	4
Россия	4
Japan	4
Germany	3
South Korea	3
Malaysia	3

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	Accurate Extraction of Large Electromechanical Coupling in Piezoelectric MEMS Resonators	30	8 CFR 204.5(i)(3) — Outstanding Researcher
Contribution 2	A Monolithic CMOS-MEMS Oscillator Based on an Ultra-Low-Power Ovenized Micromechanical Resonator	9	8 CFR 204.5(i)(3) — Outstanding Researcher
Contribution 3	Gigahertz low-loss and wideband S0 mode lithium niobate acoustic delay lines	23	8 CFR 204.5(i)(3) — Outstanding Researcher