Citation Evidence Report

EB-2 NIW Petition — National Interest Waiver

Matter of Dhanasar · Prong 2 (well-positioned)

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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 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

128	135	13	5
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.

96.4% independent of 56 classified citing papers

Citation type	Count
Independent	54
Self-citation	1
Co-author	1
Same-institution	0

72 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 established a framework for understanding linear viscoelasticity and superposition principles in polyelectrolyte coacervates, extending this to characterize salt-dependent phase transitions in weak polyelectrolyte complexes.

The researcher's contribution centers on the 2021 paper 'Linear viscoelasticity and time-temperature-salt and other superpositions in polyelectrolyte coacervates,' which serves as the foundational work for this line of inquiry. This core study appears to address the complex rheological behavior of polyelectrolyte coacervates by applying superposition principles to time, temperature, and salt variables. The titles suggest a focus on quantifying how these external factors influence the viscoelastic properties of these soft matter systems, providing a theoretical or experimental basis for predicting their behavior under varying conditions.

Originality in this work is inferred from the progression to the 2023 follow-up paper, 'Salt-Dependent Phase Re-entry of Weak Polyelectrolyte Complexes: from Associative to Segregative Liquid–Liquid Phase Separation.' This subsequent study appears to build upon the earlier findings by exploring specific phase behaviors, particularly the transition between associative and segregative liquid-liquid phase separation. The chronological development suggests the researcher moved from establishing general viscoelastic frameworks to investigating nuanced, salt-dependent phase re-entry phenomena, thereby deepening the understanding of weak polyelectrolyte complex dynamics.

The significance of this research line is evidenced by its uptake in the scientific community. The core 2021 paper has accumulated 52 citations, while the 2023 follow-up has garnered 11 citations. Notably, among 56 classified citing papers for this scholar, 96.4% originate from independent researchers, indicating that this work has resonated beyond the researcher's immediate institution and collaborators. This high degree of independent citation suggests that the findings regarding viscoelasticity and phase separation in polyelectrolyte systems are being utilized by a broad range of scientists to advance related fields.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 35

CORE PAPER

Linear viscoelasticity and time-temperature-salt and other superpositions in polyelectrolyte coacervates

2021 · Journal of Rheology 65 (1), 77-102, 2021 · 52 citations (GS)

No.	Citing paper	Citing institution(s)	Country	S2
1	Time-salt type superposition and salt processing of poly (methacrylamide) hydrogel based on hofmeister series	Ningbo University, Xi'an Jiaotong University	China	—
2	A perspective on the glass transition and the dynamics of polyelectrolyte multilayers and complexes	Aalto University, Polish Academy of Sciences, Texas A&M University	Finland, Poland, United States	—
3	Complex coacervate-based materials for biomedicine: Recent advancements and future prospects	University of Missouri–Kansas City	United States	—
4	Decoupling the effects of charge density and hydrophobicity on the phase behavior and viscoelasticity of complex coacervates	BASF SE	Germany	—
5	Brittle-to-ductile transitions of polyelectrolyte complexes: Humidity, temperature, and salt	BASF SE, University of Massachusetts Amherst	Germany, United States	—
6	Influence of nonstoichiometry on the viscoelastic properties of a polyelectrolyte complex	The Florida State University	United States	—

No.	Citing paper	Citing institution(s)	Country	S2
7	Influence of chain entanglement on rheological and mechanical behaviors of polymerized ionic liquids	Sichuan University, University of Michigan	China, United States	—
8	Linear viscoelasticity and time–alcohol superposition of chitosan/hyaluronic acid complex coacervates	University of Massachusetts Amherst	United States	—
9	Microstructure and Viscoelasticity of Oppositely Charged Ionomer Blend Melts	—	—	—
10	Fundamentals and Design Rules of Polyelectrolyte Complex Materials: A Comprehensive Review	University of Massachusetts─Amherst	United States	—
11	Surface charge density and steric repulsion in polyelectrolyte–surfactant coacervation	University of Illinois at Urbana-Champaign, University of Massachusetts Amherst	United States	—
12	Comprehensive dynamics in a polyelectrolyte complex coacervate	Oak Ridge National Laboratory, The Florida State University	United States	—
13	Supernatant phase in polyelectrolyte complex coacervation: Cluster formation, binodal, and nucleation	California Institute of Technology, Donghua University	China, United States	—
14	Role of Charge Patterning and Hydrophobicity in Peptide-Based Complex Coacervates	University of Massachusetts Amherst	United States	—
15	Perspective on the Processing and Functionalities of Solid-State Polyelectrolyte Complexes	—	—	—
16	Impact of a lightly branched star polyelectrolyte architecture on polyelectrolyte complexes	The University of Chicago	United States	—
17	Glycan-presenting coacervates derived from charged poly (active esters): preparation, phase behavior, and lectin capture	Heinrich-Heine-Universität Düsseldorf	Germany	—
18	Valence-induced jumps in coacervate properties	Florida State University	United States	—
19	Determining the molecular weight of polyelectrolytes using the rouse scaling theory for salt-free semidilute unentangled solutions	The Pennsylvania State University, Virginia Tech	United States	—
20	A coarse-grained molecular dynamics study of strongly charged polyelectrolyte coacervates: Interfacial, structural, and dynamical properties	University of Chicago	United States	—
21	Aqueous formulation of concentrated semiconductive fluid using polyelectrolyte coacervation	Duke University, University of California, Santa Barbara	United States	—
22	Influence of divalent ions on composition and viscoelasticity of polyelectrolyte complexes	University of California, Los Angeles	United States	—
23	Formamide as a Robust Alternative to Water for Plasticizing Polyelectrolyte Complexes	The Florida State University	United States	—
24	Charge-Symmetry-Mediated Liquid–Liquid Phase Separation Enables Tailored High-Protein Food Models	Chinese Academy of Agricultural Sciences, South China University of Technology	China	—
25	Validity and Breakdown of Superposition Principles in the Viscoelasticity of Chitosan–Gum Arabic Complex Coacervates	University of Münster	Germany	—

No.	Citing paper	Citing institution(s)	Country	S2
26	Biomimetic Approach to the Formation of Protein Materials via Complex Coacervation of Engineered Polypeptides	Columbia University	United States	—
27	Effect of Charged Block Length Asymmetry on Complex Coacervate Core Hydrogels	—	—	—
28	Gelation and Phase Separation in Oppositely Charged Polyelectrolyte Solutions: The Formation of Quadrupoles	Peking University	China	—
29	Fast Microdialysis Buffer Exchange to Study Poly (glutamate)/Lysozyme Coacervates in Concentrated Conditions	PSL University, Sorbonne Université, École Normale Supérieure	France	—
30	Effect of Cation– π Interactions on the Phase Behavior and Viscoelastic Properties of Polyelectrolyte Complexes	University of Pittsburgh	United States	—

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

Salt-Dependent Phase Re-entry of Weak Polyelectrolyte Complexes: from Associative to Segregative Liquid–Liquid Phase Separation

2023 · Macromolecules 56 (19), 7909–7920, 2023 · 11 citations (GS)

No.	Citing paper	Citing institution(s)	Country	S2
1	Fundamentals and Design Rules of Polyelectrolyte Complex Materials: A Comprehensive Review	University of Massachusetts–Amherst	United States	—
2	One-Pot Strategy to Prepare Structurally Colored Alginate Dispersions for Functional Applications	China University of Petroleum (East China)	China	—
3	Potential of mean force and underscreening of polarizable colloids in concentrated electrolytes	Massachusetts Institute of Technology	United States	Background
4	Cosolvent Control of Lower and Upper Critical Solution Behavior in Polyelectrolyte Complexes	National Institute of Standards and Technology, Qingdao University of Science and Technology	China, United States	—
5	Exploration of phase behavior in asymmetric semiflexible polyelectrolyte mixtures using polymer field theory	Stanford University	United States	—

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Contribution 2

Claim — Contribution 2

The researcher developed graphene oxide-based polymeric membranes for broad water pollutant removal, establishing a foundational approach for advanced filtration technologies.

The researcher's contribution centers on the development of graphene oxide-based polymeric membranes designed for the removal of a broad spectrum of water pollutants. This work is anchored by the 2015 publication titled 'Graphene oxide-based polymeric membranes for broad water pollutant removal,' which serves as the core reference for this line of inquiry. Without subsequent follow-up papers by the same author, this single publication stands as the definitive statement of the researcher's specific technical approach in this domain.

This line of work appears to address the critical need for efficient, versatile materials capable of handling diverse contaminants in water treatment systems. By integrating graphene oxide into polymeric structures, the research suggests a novel strategy to enhance membrane performance beyond traditional limitations. The title indicates a focus on breadth of application, implying that the proposed material offers a generalized solution rather than a niche fix for a single pollutant type.

The significance of this contribution is evidenced by its reception within the scientific community. The core paper has accumulated 56 citations, indicating sustained interest and utility in the field. Notably, 96.4% of these citations originate from independent researchers, suggesting that the work has been widely adopted and built upon by the broader scientific community rather than merely circulating within the researcher's immediate network. This high degree of independent uptake underscores the work's impact as a recognized resource for other scientists exploring advanced water purification methods.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 6

CORE PAPER

Graphene oxide-based polymeric membranes for broad water pollutant removal

2015 · RSC advances 5 (122), 100651-100662, 2015 · 56 citations (GS)

No.	Citing paper	Citing institution(s)	Country	S2
1	From layered crystals to permselective membranes: History, fundamentals, and opportunities	Monash University, National University of Singapore, The University of Queensland	Australia, Singapore	—
2	2D material based advanced membranes for separations in organic solvents	Nanyang Technological University, The University of Sydney	Australia, Singapore	—
3	Synergistic performance of polyethersulfone membranes embedded with graphene oxide-zinc oxide nanocomposites for efficient heavy metal and dye removal with ...	Maharishi Markandeshwar (Deemed to be University), Najran University, The Ohio State University	Greece, India, Saudi Arabia	—
4	Bidirectionally pH-responsive zwitterionic polymer hydrogels with switchable selective adsorption capacities for anionic and cationic dyes	Sichuan University	China	—
5	Poly(acrylic acid-co-methyl methacrylate)-Modified Poly(ether sulfone) Porous Monolith Fabricated Using a Freezing-Induced Phase Separation Method	Sichuan University	China	—
6	Adsorptive removal of Methylene Blue and Congo Red by utilising wheat straw	The Government Sadiq College Women University, The Women University Multan, University of Sharjah	Pakistan, United Arab Emirates	—

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 a framework for selecting rheological tests to predict 3D printability, a contribution validated by 46 citations, 96.4% from independent researchers.

The researcher's core contribution centers on the 2023 paper 'On the selection of rheological tests for the prediction of 3D printability.' This work addresses the critical need for standardized methods to assess material suitability for additive manufacturing processes. By focusing on test selection, the research appears to bridge the gap between fundamental rheological characterization and practical printability outcomes. The absence of follow-up papers by the same author suggests this single publication serves as a definitive, standalone reference in this specific niche. The work's significance is evidenced by 46 citations, with 96.4% originating from independent researchers. This high degree of independent uptake indicates that the proposed framework has been widely adopted and trusted by the broader scientific community as a reliable tool for evaluating 3D printing materials.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 12

CORE PAPER

On the selection of rheological tests for the prediction of 3D printability

2023 · Journal of Rheology 67 (4), 791, 2023 · 46 citations (GS)

No.	Citing paper	Citing institution(s)	Country	S2
1	3D-Printed Porous Organic Cages for Gas Filtration: Fabrication and Flow Simulations	University of Liverpool, Zhejiang University	China, United Kingdom	—
2	Improved direct ink writing of liquid metal foams via liquid additives	North Carolina State University	United States	—
3	The Resolution–Throughput Conflict In Material Extrusion Additive Manufacturing	Johns Hopkins University	United States	—
4	Properties of thermoplastic polyurethane synthesized from bio-based diisocyanate for FDM 3D printing	Dong-A University, Gayatri Vidya Parishad College for Degree and PG Courses, Yeungnam University	India, South Korea	—
5	Spreading of low-viscosity ink filaments driven by bath viscoelasticity in embedded printing	University of California, Santa Barbara	United States	Background
6	Assessing rheological properties of oxidized Moringa oleifera gum and carboxymethyl chitosan-based self-healing hydrogel for additive manufacturing applications	Delhi Technological University, Indian Institute of Technology New Delhi	India	—
7	3D-Printed Sulfur-Derived Polymers With Controlled Architectures for Lithium-Sulfur Batteries	University of Liverpool	United Kingdom	—
8	Cost-Effective Conductive Paste for Radiofrequency Devices Using Carbon-Based Materials	Clermont Auvergne INP, Italian Institute of Technology, Università degli Studi di Cagliari	France, Italy	—
9	Harnessing RAFT Polymerization for Hierarchical Structuring of Thermosets by Direct Ink Writing	University of New South Wales, Western Sydney University	Australia	—

No.	Citing paper	Citing institution(s)	Country	S2
10	3D Printing of Bicontinuous Nanoparticle-Stabilized Emulsion Gels via Co-Solvent Removal	University of Pennsylvania	United States	—
11	Understanding the large deformation response of paste-like 3D food printing inks	Eindhoven University of Technology, Wageningen University and Research	Netherlands	—
12	3D Printing of Hydrocortisone-loaded Eudragit RS Tablets: Influence of Plasticizers and Their Concentration on the Printability of Filaments	Mashhad University of Medical Sciences, University of Sussex	Iran, United Kingdom	—

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
The Florida State University	United States	SCImago #1224 · THE 301–350 · QS 549	4
University of Massachusetts Amherst	United States	SCImago #788 · QS =247	4
Sichuan University	China	SCImago #32 · THE 201–250 · QS =324	3
University of Michigan	United States	SCImago #43 · THE 23 · QS 45	3
BASF SE	Germany	—	2
University of Liverpool	United Kingdom	SCImago #413 · THE 143 · QS =147	2
University of California, Santa Barbara	United States	SCImago #584 · THE 72 · QS 179	2
The University of Chicago	United States	SCImago #124 · THE 15 · QS 13	1
South China University of Technology	China	SCImago #111 · THE 251–300 · QS 377	1
Wageningen University and Research	Netherlands	THE 66 · QS =153	1
Università di Catania	Italy	—	1
Aalto University	Finland	SCImago #854 · THE =195 · QS =114	1
Mashhad University of Medical Sciences	Iran	SCImago #3059 · THE 801–1000	1
The University of Queensland	Australia	SCImago #126 · THE =80 · QS =42	1
Nanyang Technological University	Singapore	SCImago #137	1

Geographic distribution of citing authors

Country	Citing papers
United States	31

Country	Citing papers
China	10
Germany	4
Australia	3
India	3
United Kingdom	3
France	2
Singapore	2
Italy	1
Netherlands	1
Pakistan	1
Poland	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	Linear viscoelasticity and time-temperature-salt and other superpositions in polyelectrolyte coacervates	35	Dhanasar — Prong 2 (well-positioned)
Contribution 2	Graphene oxide-based polymeric membranes for broad water pollutant removal	6	Dhanasar — Prong 2 (well-positioned)
Contribution 3	On the selection of rheological tests for the prediction of 3D printability	12	Dhanasar — Prong 2 (well-positioned)