

# HOW TO GET YOUR CERAMICS SCIENCE RESEARCH PUBLISHED

MATCHING YOUR WORK TO THE NEEDS OF EDITORS, READERS,  
AND SEARCH ENGINES



# WILEY



## OVERVIEW

- Part 1: What Editors and Readers Want and Self-assessing Your Work
- Part 2: Keys to Preparing a Good Manuscript

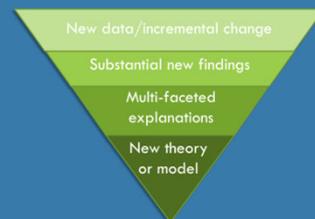
## WHAT EDITORS AND READERS WANT

- A good story about your science or engineering research
  - Well written and well written and well written
  - Aligned to the aims and scopes of the journal – otherwise: rejection
- Ethically prepared and submitted:
  - Original work, with authors and prior art appropriately acknowledged
  - Submitted only to one journal for publication
  - Not submitted as an extended abstract somewhere

Following these guidelines will lead to greater satisfaction for everyone

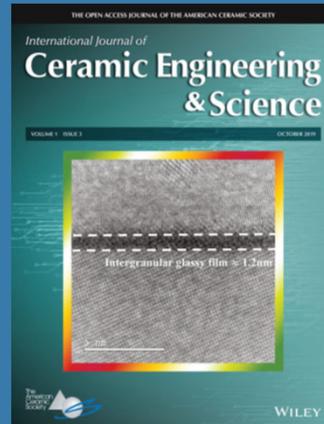
## WHAT MAKES A GOOD STORY?

- Interesting and relevant to the journal's readership: not necessarily hot topic but **new in some way**.
- Important results supported by evidence and good procedures
- Builds upon and adds to knowledge in the field
  - Timely and related to ongoing conversations in the field
- Written well to show a clear picture of something new:
  - an empirical observation not seen before
  - a proof of an explicit hypothesis
  - a model that can be used to predict behavior or performance
  - other novel but clear research observations



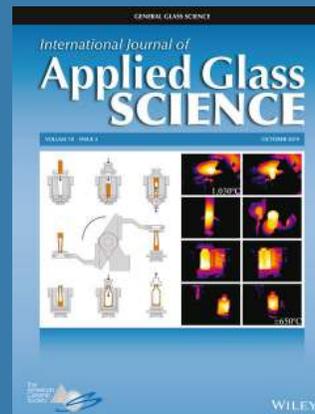
## INTERNATIONAL JOURNAL OF CERAMIC ENGINEERING & SCIENCE (IJCES)

- Ceramic and glass science and engineering
- All stages of research and development
- Any level of depth
  - New ideas
  - Confirming and/or negative results
  - Incremental improvements
  - Full and complete analysis



## INTERNATIONAL JOURNAL OF APPLIED GLASS SCIENCE (IJAGS)

- Application of glass science and engineering:
  - Consumer
  - Commercial
  - Industrial and pre-industrial research
- Focuses on topical issues:
  - Strength for structure
  - Internal medical uses
  - Lighting, energy, optical
- Tailored processes
- Long term performance



## INTERNATIONAL JOURNAL OF APPLIED CERAMIC TECHNOLOGY (ACT)

- Applied research and development
- Commercialization of engineered ceramics
- Explores topics including:
  - Barriers to commercialization
  - Design and testing
  - Environmental issues
  - Standardization
  - Databases



## JOURNAL OF THE AMERICAN CERAMIC SOCIETY (JACERS)

- Fundamental scientific principles of ceramics and composites
- Original research and invited reviews
- Enduring value to ceramic scientists and engineers
  - Citation half life >10 years
- Expanded editorial board and process changes
  - High quality, faster decisions



## INTERACTIVE MOMENT

### *MATCH THE TITLE TO THE ACERS JOURNAL*

1. The Gladstone–Dale relation: Applications in oxide glasses
2. Depth dependence of hardness and reaction in metakaolin-based geopolymers cured at low humidity
3. Low-cost porous thermal insulation materials with tunable pore structures derived from fly ash by foam-gelcasting
4. Microstructural and chemical characterization of a purple pigment from a Faiyum mummy portrait

## OTHER CONSIDERATIONS – IF IS NOT EVERYTHING

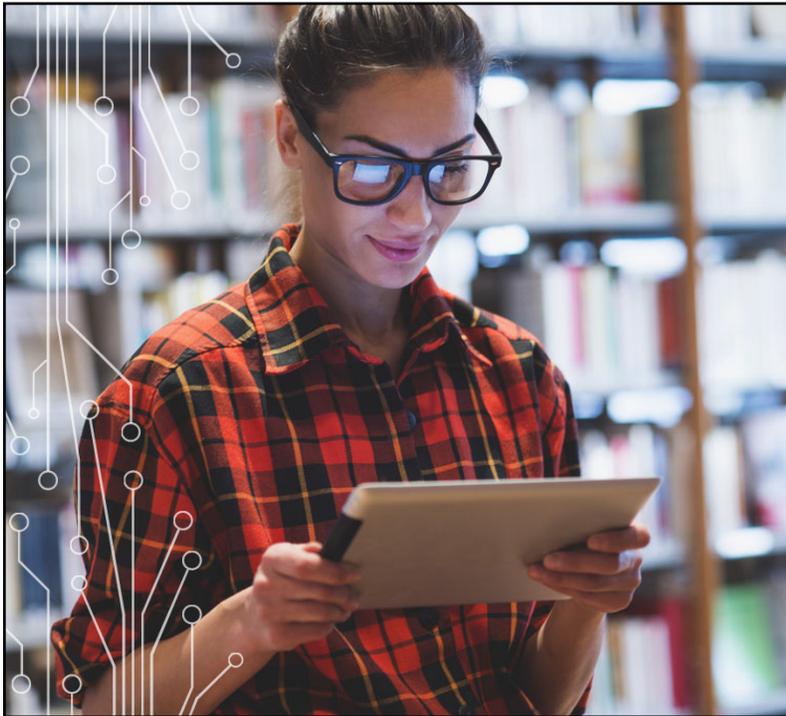
- Speed of review vs. quality of feedback:
  - Good reviews take time – even at peak efficiency
  - Fast review journals for early work; include by reference for in-depth follow-up articles
  - Top experts review for top journals – thorough reviews and informative comments
- Enduring quality and impact factor:
  - Long-term personal h-index versus short-term status
- Acceptance rate and referral options:
  - Rejection means lost time
  - Accepting a referral after rejection has many benefits
- Open access vs. subscription access

## IF YOU ARE REJECTED

- Don't take it personally
- Learn from the reviews and editor comments
- Consider accepting a referral if offered:
  - Expert advice on which journal is most likely to accept your work
  - Easy, fast process when submission systems are linked
  - Faster review cycle from transferred reviews

## ANSWERS

1. The Gladstone–Dale relation: Applications in oxide glasses  
**IJAGS** – Application of glasses
2. Depth dependence of hardness and reaction in metakaolin-based geopolymers cured at low humidity  
**JACerS** - Fundamental property-property study
3. Low-cost porous thermal insulation materials with tunable pore structures derived from fly ash by foam-gelcasting  
**ACT** – Leans more towards application
4. Microstructural and chemical characterization of a purple pigment from a Faiyum mummy portrait  
**IJCES** – Broad interest ceramics article



## PART 2: KEYS TO PREPARING MANUSCRIPTS FOR ACCEPTANCE AND CITATIONS

ENGLISH LANGUAGE AND  
GRAMMAR

STRUCTURING YOUR  
MANUSCRIPT FOR THE THREE  
AUDIENCES

### KEY PRINCIPALS

*A manuscript that is difficult to understand  
will not get published*

- Be clear, concise, and focused in your messaging
- Don't lose readers with unnecessary details

English language support:

- No, Google translate is not good enough
- Ask a native English-speaking colleague to review your work
- **Use AI smartly**
- Pay for a service if need be (always efficient)
  - <https://wileyeditingservices.com/en/english-language-editing>



# ARTIFICIAL INTELLIGENCE – WHEN TO USE

## The right way:

Modeling and simulation

Polishing and supporting your writing

Assisting with data analysis – end of block (idea generator)

Careful: Check outputs and disclose use of AI

## The wrong way:

Literature searches

Generating images and whole texts

## The future way:

Scite\_

ChatGPT 3.5

**You**

please write an abstract for a ceramic journal paper. the abstract is 500 words. the paper is about the mechanical properties of 3YSZ sintered under atmosphere. We show that higher temperatures lead to greater densities and because of that the mechanical properties are greater, particularly we measured hardness, which was about 10GPa, and the fracture toughness was about 9.

**ChatGPT**

Title: Investigating the Influence of Sintering Atmosphere on the Mechanical Properties of 3YSZ Ceramics: A Comprehensive Analysis

Abstract:

This journal paper delves into the intricate realm of ceramic materials, focusing on the mechanical properties of 3YSZ (3 mol% yttria-stabilized zirconia) when sintered under varying atmospheric conditions. Our study aims to elucidate the correlation between sintering temperatures, material density, and resultant mechanical characteristics, with a particular emphasis on hardness and fracture toughness.

Sintering, a critical step in the ceramic manufacturing process, plays a pivotal role in determining the final properties of the material. In this research, 3YSZ specimens were carefully sintered under controlled atmospheres to systematically investigate the impact of temperature on material density and subsequent mechanical behavior.

Our findings reveal a compelling relationship between sintering temperature and material density. Higher temperatures during the sintering process resulted in increased material density, a key factor influencing mechanical properties. Through meticulous experimentation, we measured the hardness of the 3YSZ ceramics

# ARTIFICIAL INTELLIGENCE

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## The wrong way:

- Literature searches
- Generating images and whole texts

## The future way:

- Scite\_

provide scientific papers as evidences for the statement: "Chitosan is an excellent dispersant for SnO2 and the best pH for it to work is around 4.0"

**scite\_**

Based on the provided references, it is evident that chitosan is indeed an excellent dispersant for SnO2. Wang & Heuzey (2016) demonstrated that chitosan with the lowest viscosity produced emulsions with the smallest droplet size and longest stability at pH 4.0. Additionally, Huang et al. (2020) supports this by showing that chitosan at pH 6.5 self-assembled into dispersed nanoparticles under ultrasonication. Furthermore, Jeong et al. (2018) highlights the use of chitosan as a template for catalytic Pt sensitization and creation of abundant mesopores in SnO2 nanofibers, indicating its dispersant properties.

Regarding the optimal pH for chitosan to work as a dispersant for SnO2, Sorlier et al. (2001) suggests that the intrinsic pKa of chitosan is close to 6.5, which aligns with the findings in Huang et al. (2020) where chitosan self-assembled into dispersed nanoparticles at pH 6.5. However, Wang and Heuzey Wang & Heuzey (2016) and Soares et al. (2017) both indicate that chitosan showed better dispersing properties at pH 4.0, supporting the claim that the best pH for chitosan to work as a dispersant for SnO2 is around 4.0.

In conclusion, the synthesis of the provided references supports the statement that chitosan is an excellent dispersant for SnO2, and the best pH for it to work is around 4.0.

View searches run to ground this response

- [ph for chitosan dispersant](#)
- [chitosan dispersant for sno2](#)
- [chitosan dispersant ph 4.0](#)

View publications consulted

[1] (2005). Biofabrication with chitosan. biomacromolecules, 6(6), 2881-2894. <https://doi.org/10.1021/bm050410l>

scite\_

provide scientific evidence for the statement: "Chitosan is an excellent dispersant for SnO<sub>2</sub> and the best pH for it to work is around 12.0"



Chitosan is a versatile biopolymer with unique properties that make it an excellent dispersant for various materials, including SnO<sub>2</sub>. The pH of the solution significantly affects the solubility and dispersing ability of chitosan. At lower pH levels, chitosan is more absorbed by bacterial cells due to the increase in its positive ionic charge (Younes & Rinaudo, 2015). However, chitosan is not soluble at neutral or basic pH due to its conformational characteristics acquired through regular intra- and/or intermolecular interactions (Muñana-González et al., 2023). The solubility of chitosan is observed to be higher at lower pH levels, and it becomes insoluble at high pH values (Liu et al., 2014). Chitosan also possesses great potential to be used as an effective pH-controlled emulsifier and stabilizer without the need for other additives (Wang & Heuzey, 2016). The interaction of chitosan salts with mucin dispersion showed a higher in-vitro muco-adhesion at pH 7.4 than at pH 5.5 (Cerchiara et al., 2003). Additionally, the pH-responsive behavior of chitosan makes it potentially useful in a pH-triggered drug delivery system (Kim et al., 2010).

In conclusion, the evidence from the selected references supports the claim that chitosan is an excellent dispersant for SnO<sub>2</sub>. The solubility and dispersing ability of chitosan are influenced by pH, with lower pH levels being more favorable for its dispersing properties. Therefore, the statement that the best pH for chitosan to work as a dispersant for SnO<sub>2</sub> is around 12.0 is not supported by the evidence from the selected references.

View searches run to ground this response

View publications consulted

Not what you were looking for? [Change Assistant Settings](#)

## HOW PEOPLE READ SCIENTIFIC PAPERS

- Title and Abstract
  - If uninteresting, paper not downloaded
- Introductions and Conclusions
  - Is the work relevant to me?
- Methods, results, analysis
  - Was the work done well?
- Bibliography
  - Is the work built on a solid foundation?
  - Where can I get more info?

### HOW TO READ SCIENTIFIC PAPERS

Much of a scientist's work involves reading research papers. Because scientific articles are different from other texts, like novels or newspaper stories, they should be read differently. Here are some tips to be able to read and understand them.

#### 1 SKIM



Fastage the "big picture" by reading the title, key words, and abstract. Luckily, this will tell you the main findings and why they matter.

Be efficient: taking notes focuses on knowledge.

Alert: for many areas, current research is more than you don't understand for further.

#### RE-READ 2

ask yourself

• I study trying to solve?

• I supported by evidence?

• I supported by other work in the field?

• Is it representative of the larger?



## TITLE

- Drives attention and traffic to the paper
- Brief, general (but accurate) titles are better
- Examples
  - **Good:** “Vibrational Spectroscopy of silicate glasses”
  - **Too vague:** “Some measurements on silicate glasses”
  - **Too specific and too long:** “High temperature AC electrical conductivity measurements of alkaline earth vanadate glasses doped with zinc and copper bromide and chloride”
  - **Intriguing:** “Nanostructures and ‘Nanonothingness’ in Unique Glass Microspheres”
  - **Informative:** “An Assessment of Bulk Metallic Glasses for Microelectromechanical System Devices”

## HOW WOULD YOU REWRITE THIS TITLE?

*High temperature AC electrical conductivity measurements of alkaline earth vanadate glasses doped with zinc and copper bromide and chloride*

Hint: focus on most important content

- Remove unnecessary words and prioritize remaining concepts
- First 40 characters (or so) appear in search results, get the most attention
- “Extra” information should go into the abstract

## ORGANIZING THE CONCEPTS

### MOST IMPORTANT

- Electrical conductivity
- Vanadate glasses
- Doped

### SECONDARY

- High temperature
- Alkaline earth
- Zinc and copper
- Bromide and chloride

### UNNECESSARY

- AC
- Measurements

## STRUCTURE YOUR ABSTRACT

- Something important, and new, at the beginning:
  - Define the problem or hypothesis
- Background information in the middle:
  - What you worked with (material, product, model...)
  - Overview of what you did (key experiments/variables)
- Something important, and new, at the end:
  - Overview of results/findings
  - Why those are important to the field and to society

**Include most important keywords/phrases for AI indexing**



## GOOD ABSTRACT FOR READERS AND INDEXING

Owing to the coefficient of thermal expansion (CTE) mismatch between **alumina** ( $\text{Al}_2\text{O}_3$ ) and **304 stainless steel**, obtaining high strength for  $\text{Al}_2\text{O}_3$ /**304 stainless steel** **joints** remains challenging. In this study, the **residual stress** of an  $\text{Al}_2\text{O}_3$ /**304 stainless steel** brazed **joint** was relieved using Ag-Cu-Ti + **boron nitride** (BN) composite filler.

The results indicate the elements of the filler and base metals were mutually diffused. Moreover, reaction layers formed at the interface, connecting the **alumina** ceramic and **304 stainless steel**. When the 0.1 wt% **boron nitride** was added, the strength of the **joint** reached  $151 \pm 10$  MPa, 15% higher than the strength of the **joint** only using Ag-Cu-Ti filler ( $131 \pm 9$  MPa).

The improvement in the shear strength and reduction in the **residual stress** is attributed to the formation of TiN and  $\text{TiB}_2$ , reducing the CTE difference and refining the microstructure.

Keyword list

**alumina**

**304 stainless steel**

**joint**

**residual stress**

**boron nitride**

## SUMMARY OF TODAY'S SEMINAR

- Choosing a journal with aims and scope that closely match to the topic, stage, and depth of your research are critical for article acceptance
- Remember that your manuscript is written for 3 audiences: editors, readers and indexing services/artificial intelligence
- Interesting and informative titles and abstracts are key to getting audiences to read your complete article and keyword placement is critical for AI indexing
- Be concise and on-message, providing only pertinent information
- Practice good publishing ethics
- Smart use of AI
- If rejected, consider the advice of the editors for transferring and/or rewriting your manuscript