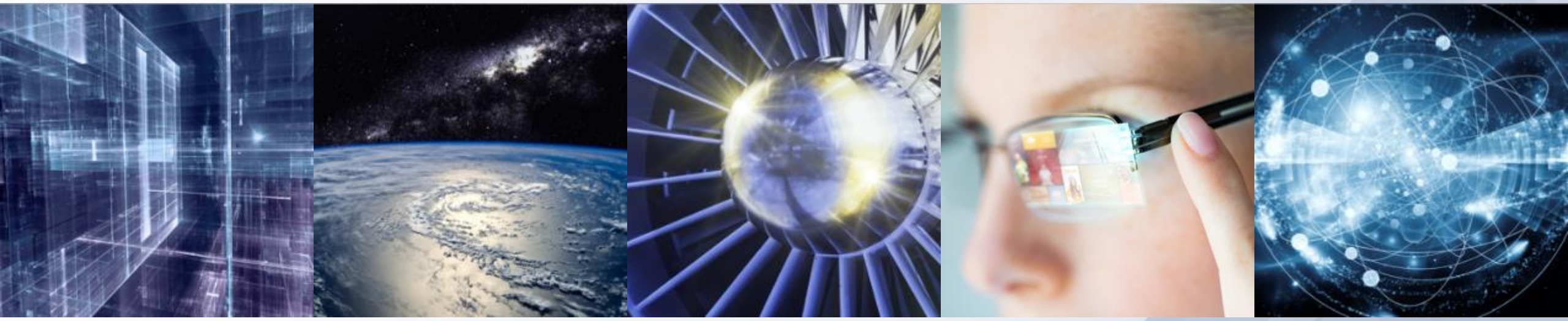


Understanding the Publishing Process: Behind the Scenes with IEEE

Brian Ryckman, IEEE Client Services Manager

IEEE
Advancing Technology for Humanity

What we do

- IEEE is the world's largest technical membership association with more than 420,000 members in over 160 countries
- Publish the top-cited science and technology research in the field, most notably journals, conferences and standards
- Publish approximately 200 journals, transactions, and magazines
- Sponsor more than 2,000 annual conferences worldwide
- Leading developer of over 5,100 industry standards in a broad range of technologies
- Hundreds of hours of IEEE eLearning courses
- Publish technical books in all the fields served by IEEE
- Not for profit organization "Advancing Technology For Humanity"

Today's Author Workshop

Topics Covered

Publishing Choices

Peer Review

Paper Structure

Submission Guidelines

Promoting your Research

Resources

Steps to Consider When Writing a Technical Paper

Publishing Choices

Publish

IEEE journal or IEEE conference?

- A **journal article** is a fully developed presentation of your work and its final findings
  - Original research results presented
  - Clear conclusions are made and supported by the data
- A **conference paper** can be written while research is ongoing
  - Can present preliminary results or highlight recent work
  - Gain informal feedback to use in your research
  - Typically shorter than journal articles, with less detail and fewer references

Publish

IEEE journal or IEEE conference?

IEEE has over **200 publications** covering a wide range of technical

- Review the journal listings
  - Who reads it
  - What they publish
  - What kinds of articles they want

IEEE publishes over **2,000** leading-edge **conference proceedings**

- Review the conference calendar
  - Find a good match for your research subject matter
  - Ensure you are available to present

IEEE

Publish

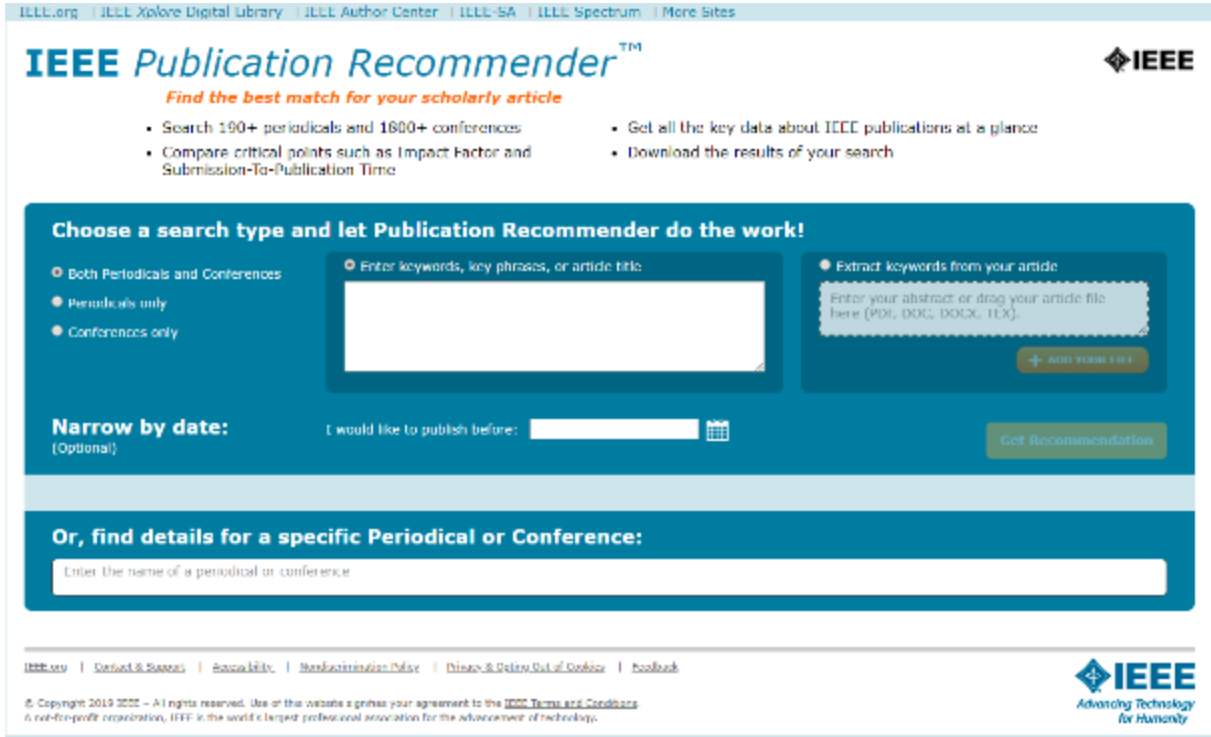
Evolution of Research

- IEEE supports researchers and the evolution of their research. The later work must build upon the earlier work.
- Reference the prior publication and indicate what's different.
- Presentation itself is not considered prior publication, but publication in conference proceedings does count as prior publication.
- Recorded presentations and annotated PPTs may be published in IEEE *Xplore*

Publish

Picking the Right Publication

- Try the IEEE Publication Recommender
- Look at the publications cited in your references
- Ask your supervisor or other colleagues experienced in publishing for recommendations
- Run a keyword search in IEEE *Xplore*
- Sign up for Content Alerts
- Read leading journals in the field of your article



https://publication-recommender.ieee.org/home

Tip: Read the Aims & Scope of your target publication.

Impact Factor is Not Enough of a Metric

- Journal's reputation in the community is important
- For new and lesser known journals, look at the editorial board and the qualifications / CVs.

Other ways of evaluating a journal's value to the engineering community

- Number of Downloads (IEEE uses this information for revenue distribution)
- Patent Citations (Available from IEEE)
- Other Metrics (Article Influence Score, Eigenfactor)

Open Access

Open Access

What is Open Access?

- Article is made freely available upon publication; no subscription or pay-per-view fee required
- Often supported by an Article Processing Charge (APC), paid for by the author or research funder
- May include different copyright or licensing agreement than traditional publication

What are predatory journals?

Predatory publishing is an exploitive publishing business model that involves charging publication fees to authors with minimal or no peer review, poor production quality and difficult to find.

Be wary of:

- Unprofessional website
- Flattering, urgent submission invitations
- Unusual scope
- Absence from popular indices

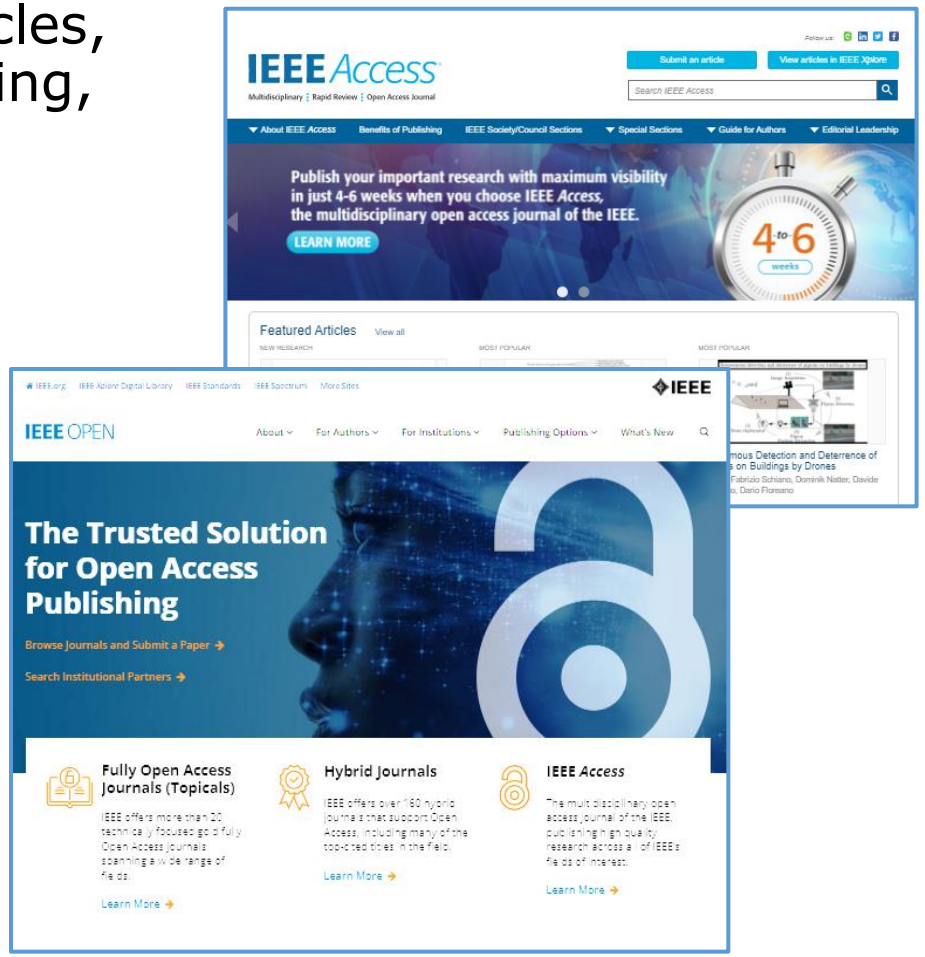
IEEE

IEEE's Evolving Open Access Program

To help authors gain maximum exposure for their groundbreaking research and application-oriented articles, IEEE offers three options for open access (OA) publishing, all designed to meet the varying needs of our authors throughout their careers.

OA Publishing Options

1. **Hybrid Journals** - **160** journals and magazines spanning an array of technology fields. These titles have Transformative Status under Plan S.
2. **Fully Open Access Topical Journals** – **20+ titles** and more coming soon
3. **Multidisciplinary OA journal** - **IEEE *Access***
   - IEEE's largest open access journal, over 60,000 articles since 2013
   - Highly cited journal in a range of fields
   - Rapid yet rigorous peer review process of 4 to 6 weeks.



With the above options for authors, IEEE has published over 100,000 open access articles in IEEE *Xplore*.

Open Access at IEEE

Workflow for IEEE OA OnDemand– 2023

IEEE

This portion of the presentation is meant for current or prospective open access authors and administrators. It shows the process of open access (OA) publication from submission to publication.

- Submission process
- Post acceptance
- RightsLink for Scientific Communications (RLSC)

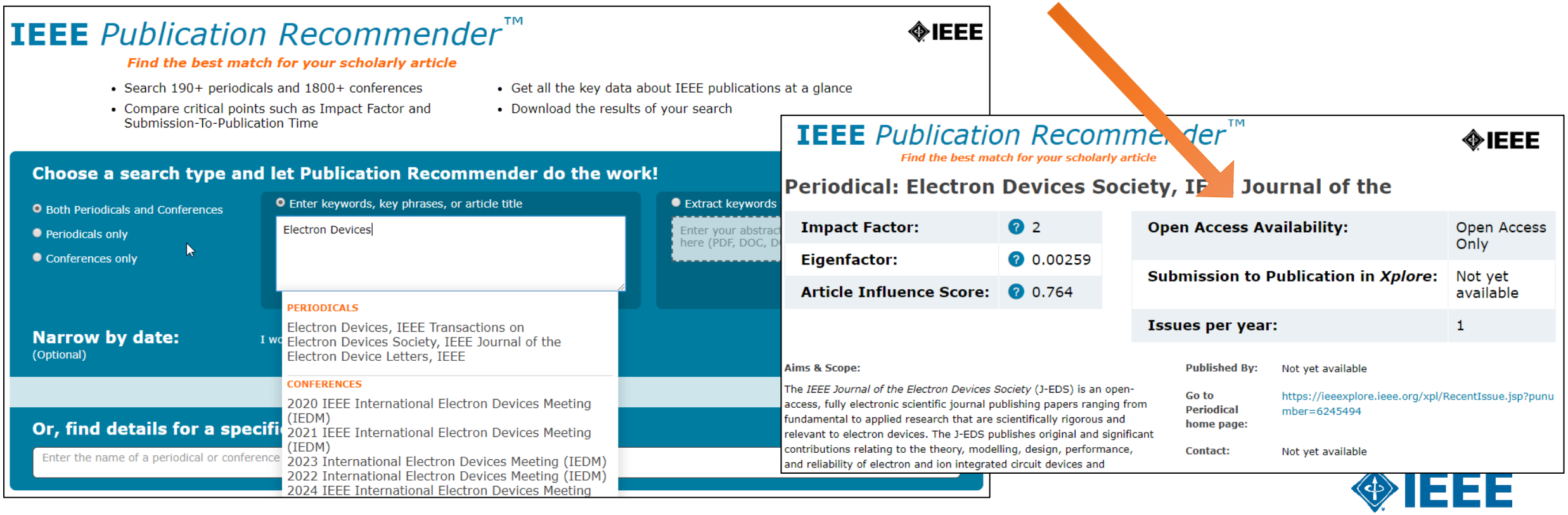
Author Process:
Submission

Submission – Step 1

https://publication-recommender.ieee.org/home

IEEE Publication Recommender helps authors find the most suitable journal and displays journal's OA Status with submission URL

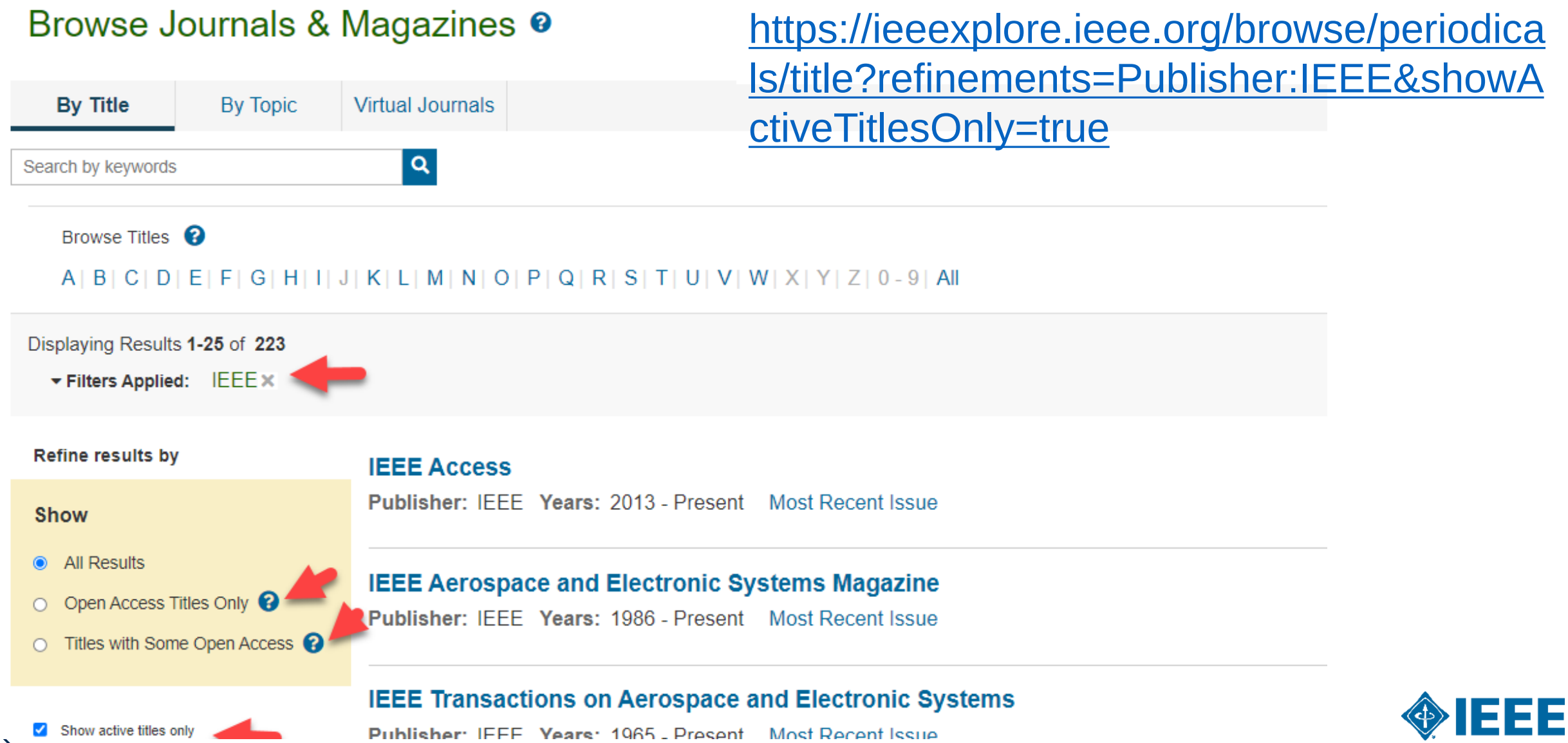
Note: Open Access status clearly displayed in results.



IEEE

Submission – Step 1 – in IEEE *Xplore*

https://ieeexplore.ieee.org/browse/periodicals/title?refinements=Publisher:IEEE&showActiveTitlesOnly=true



Submission – Step 1 – in IEEE *Xplore*

IEEE Open Journal of Antennas and Propagation

Submit Manuscript | Add Title To My Alerts | Add to My Favorites

Home | Topics | Popular | Early Access | Current Volume | All Volumes | About Journal

The IEEE Open Journal of Antennas and Propagation covers antennas, including analysis, design, development, measurement, standards, and testing; radiation, propagation, and the interaction of electromagnetic waves with discrete and continuous media; and applications and systems pertinent to antennas, propagation, and sensing, such as applied optics, millimeter-and sub-millimeter-wave techniques, antenna signal processing and control, radio astronomy, and propagation and radiation aspects of terrestrial and space-based communication, including wireless, mobile, satellite, and telecommunications at all frequencies.

The IEEE Open Journal of Antennas and Propagation (IEEE OJAP) welcomes contributions covering aspects from theory and design to applied engineering innovations, topical review, and perspective articles. The journal publishes papers on mature topics as well as on emerging fields, including those at the nexus of other engineering and science disciplines that are dependent upon antennas and propagation. IEEE OJAP is committed to supporting open and transparent research exchange and enabling authors to embrace best practices in data and code sharing.

This journal is 100% open access. Learn more.

rigorous peer review | rapid publication

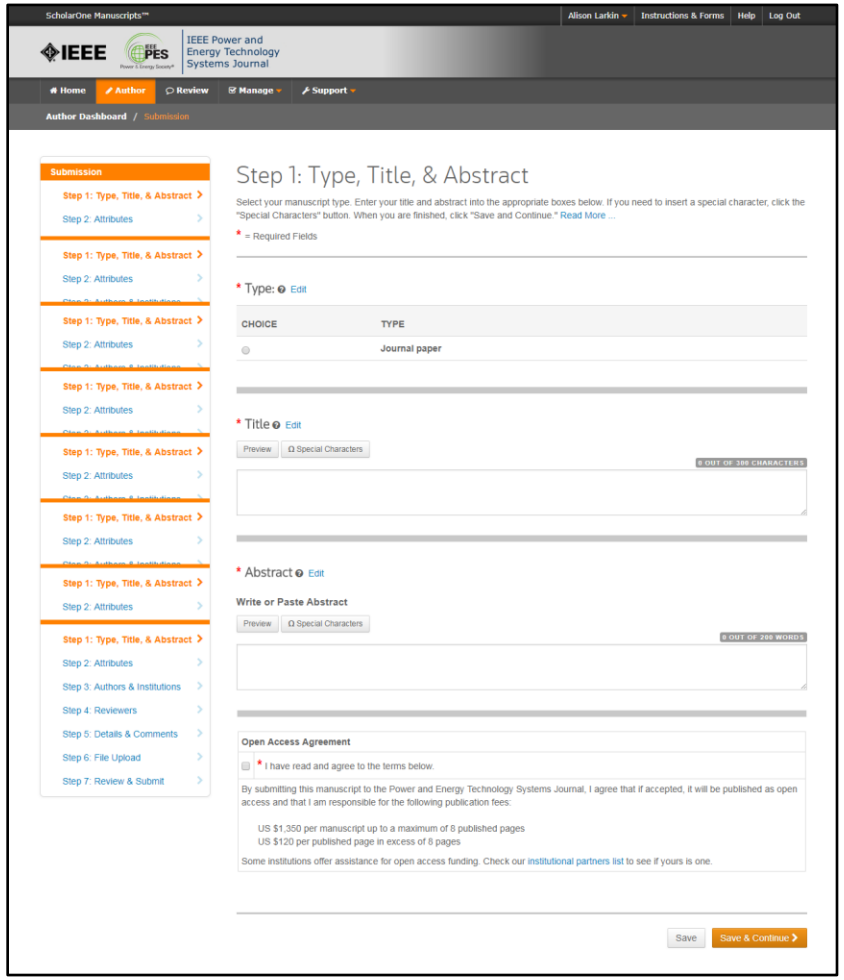
This journal is 100% open access, which means that all content is freely available without charge to users or their institutions. All articles are

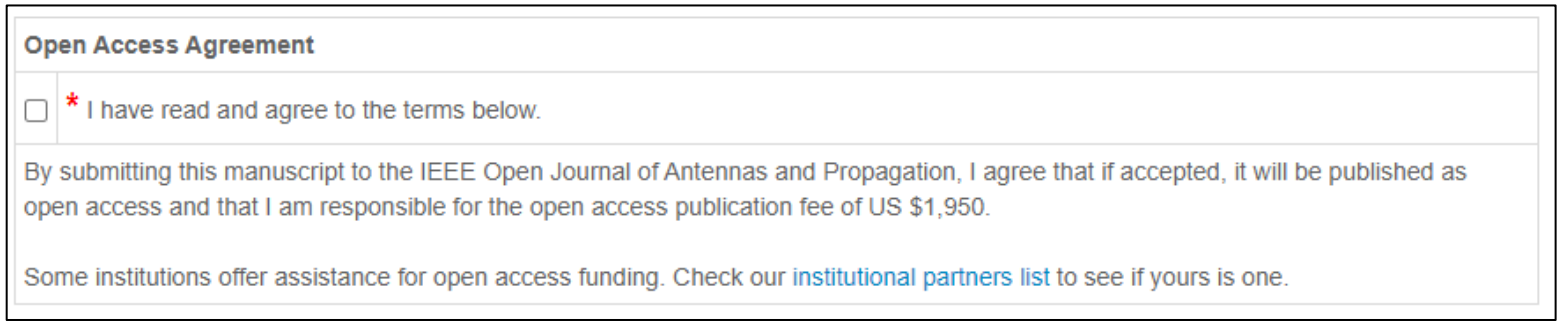
IEEE

Submission process

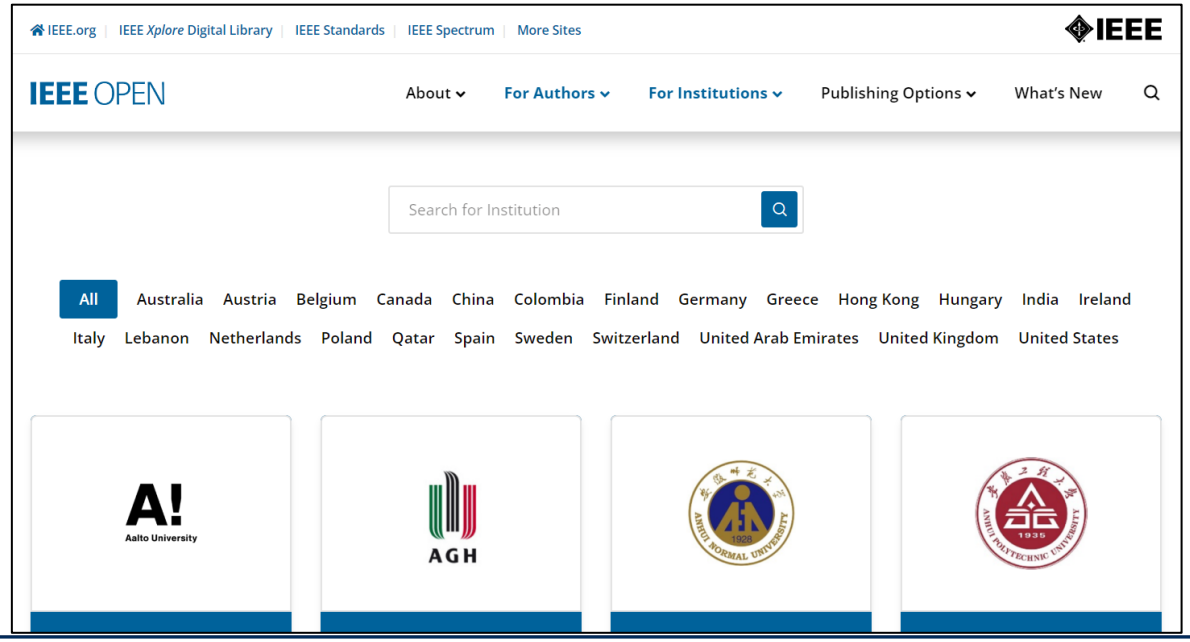
- The corresponding author will complete the submission process.
- Authors submitting to fully OA journals will be asked to accept OA terms and charges during Step 1.
- Authors submitting to hybrid journals will not be asked to select OA until after acceptance.

Submission – Step 1 – Fully OA journal

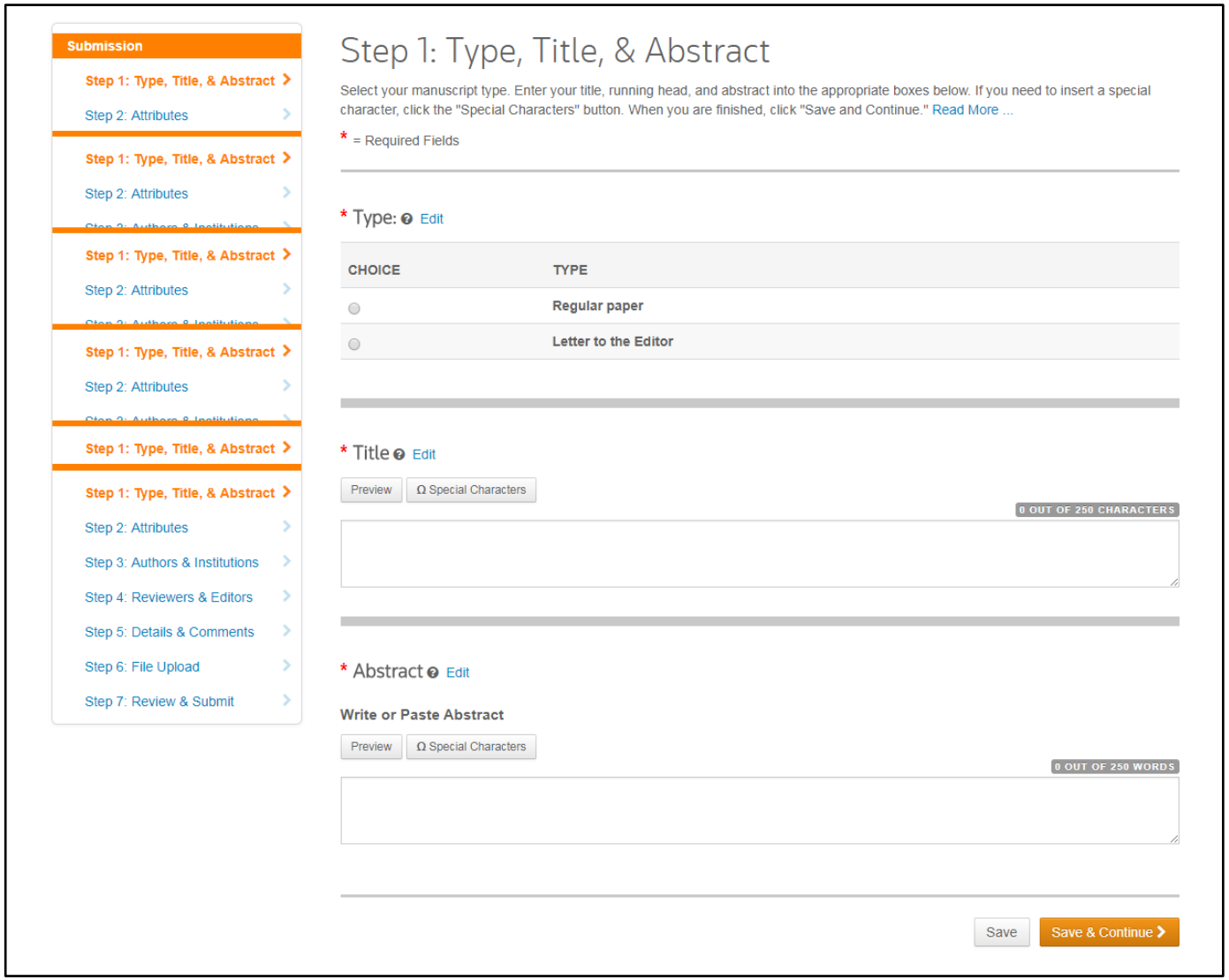




The institutional partners list goes to https://open.ieee.org/for-institutions/institutional-partners/



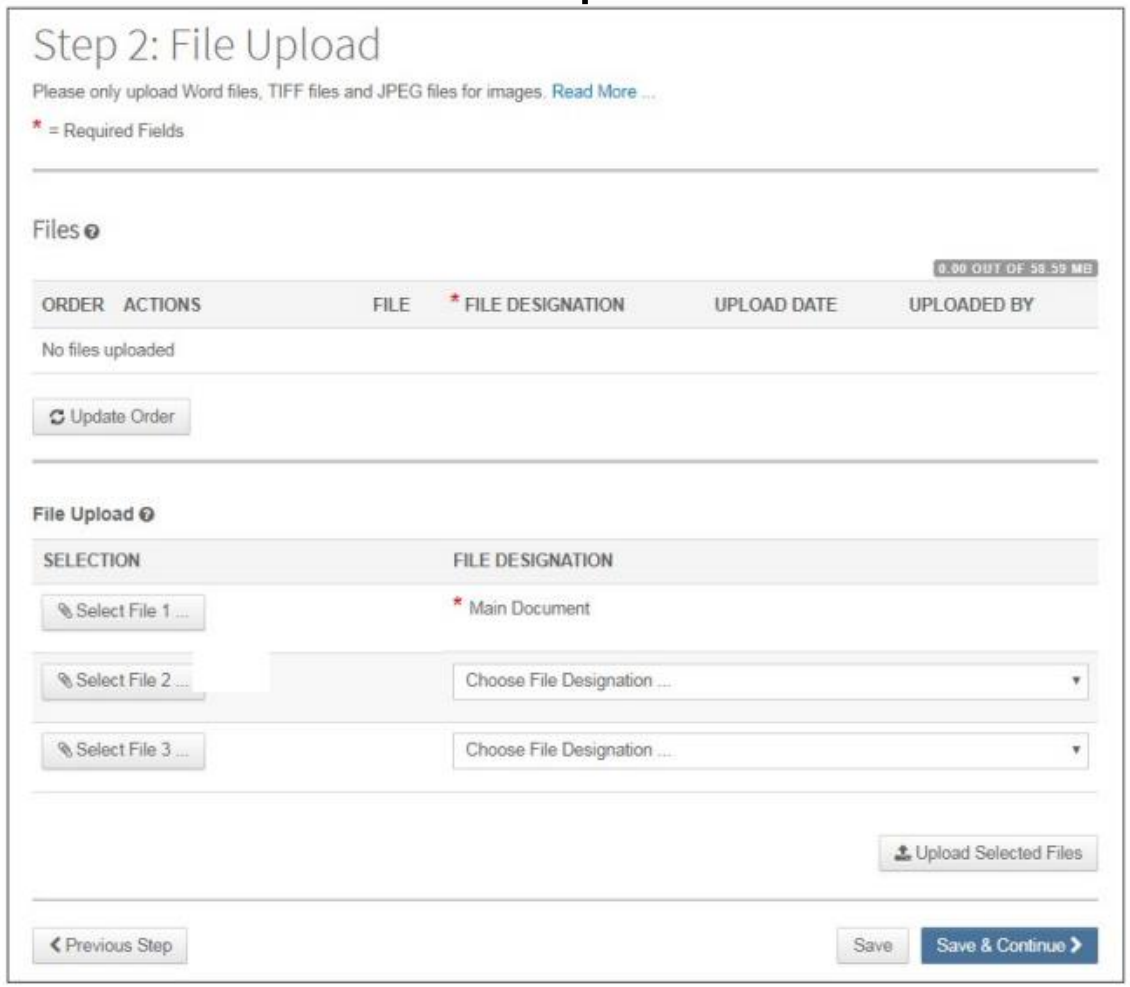
Submission – Step 1 – Hybrid journal



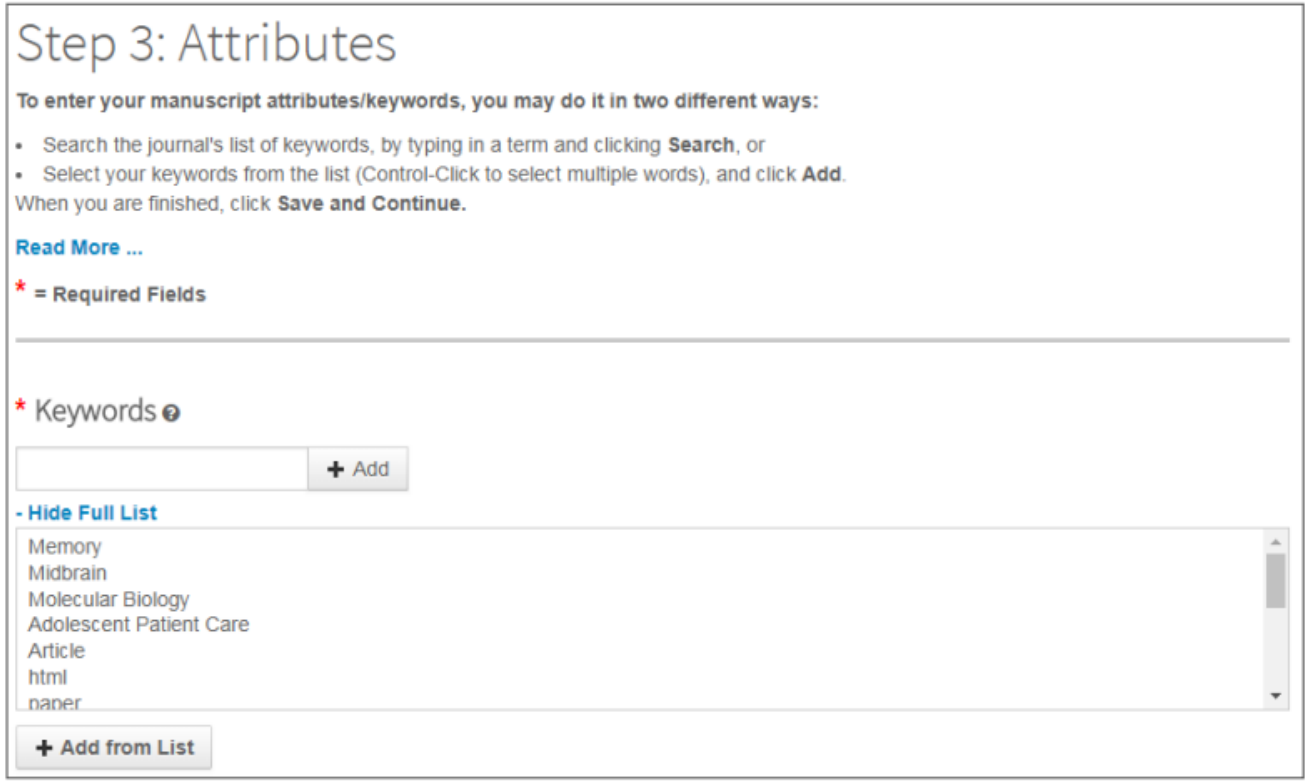
Open Access question is not present at submission for hybrid publications

Submission – Steps 2 and 3

Step 2: the author will upload their manuscript files



Step 3: the author will upload their attributes, or keywords

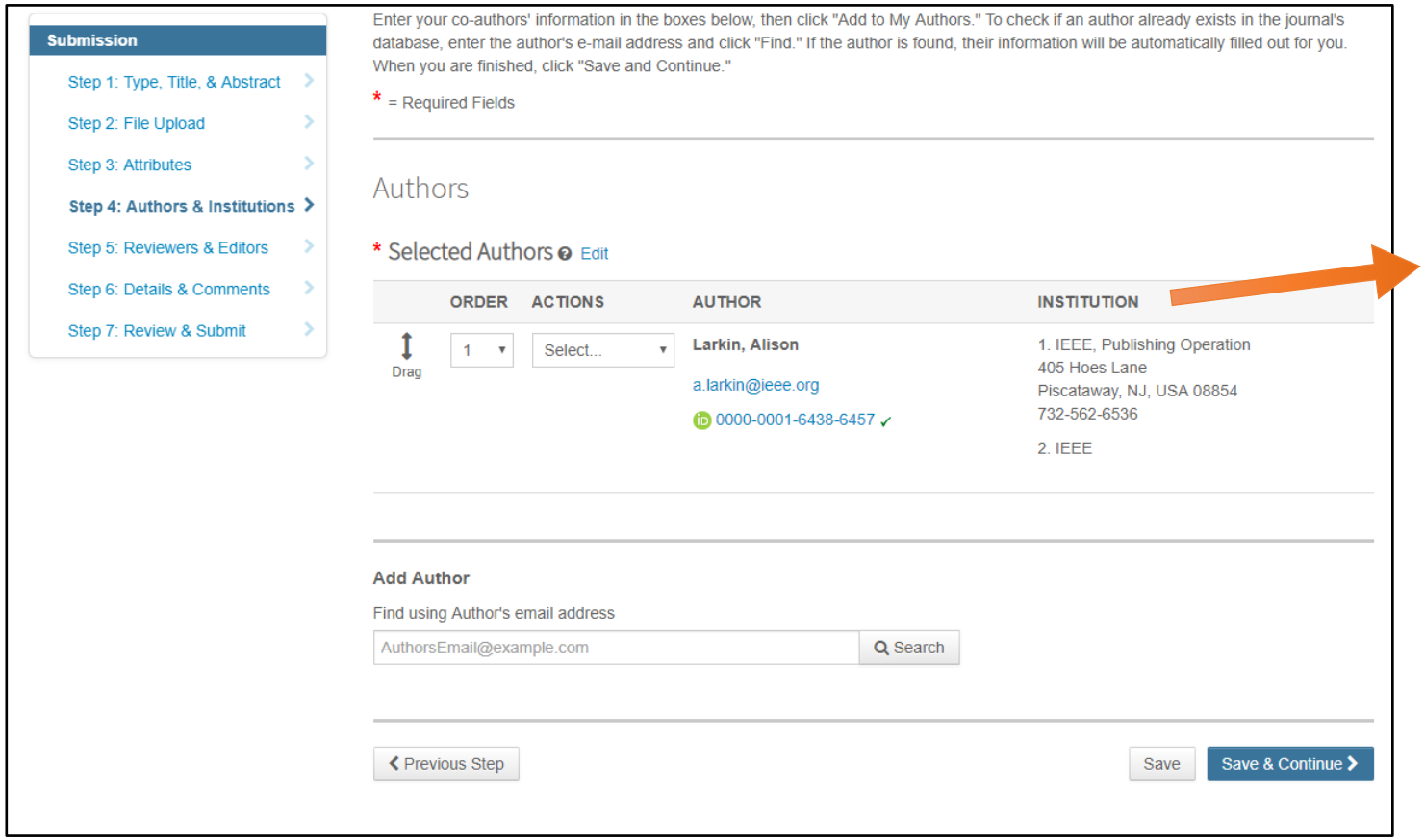


Submission – Step 4

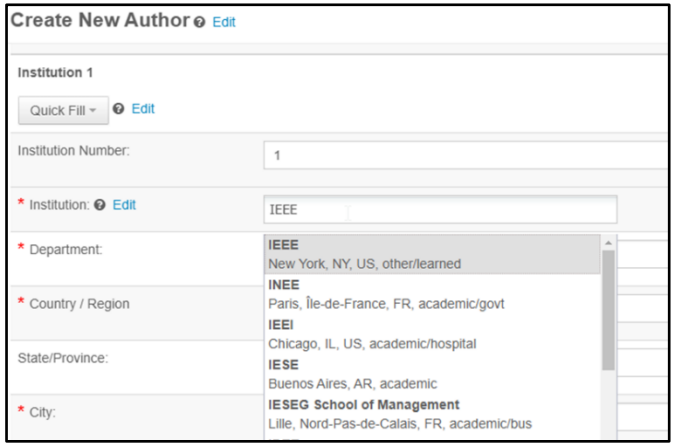
Step 4: author enters metadata

Corresponding author adds affiliation data for all authors.

The institution entered will be used to match the author with an institutional OA agreement with Ringgold API.



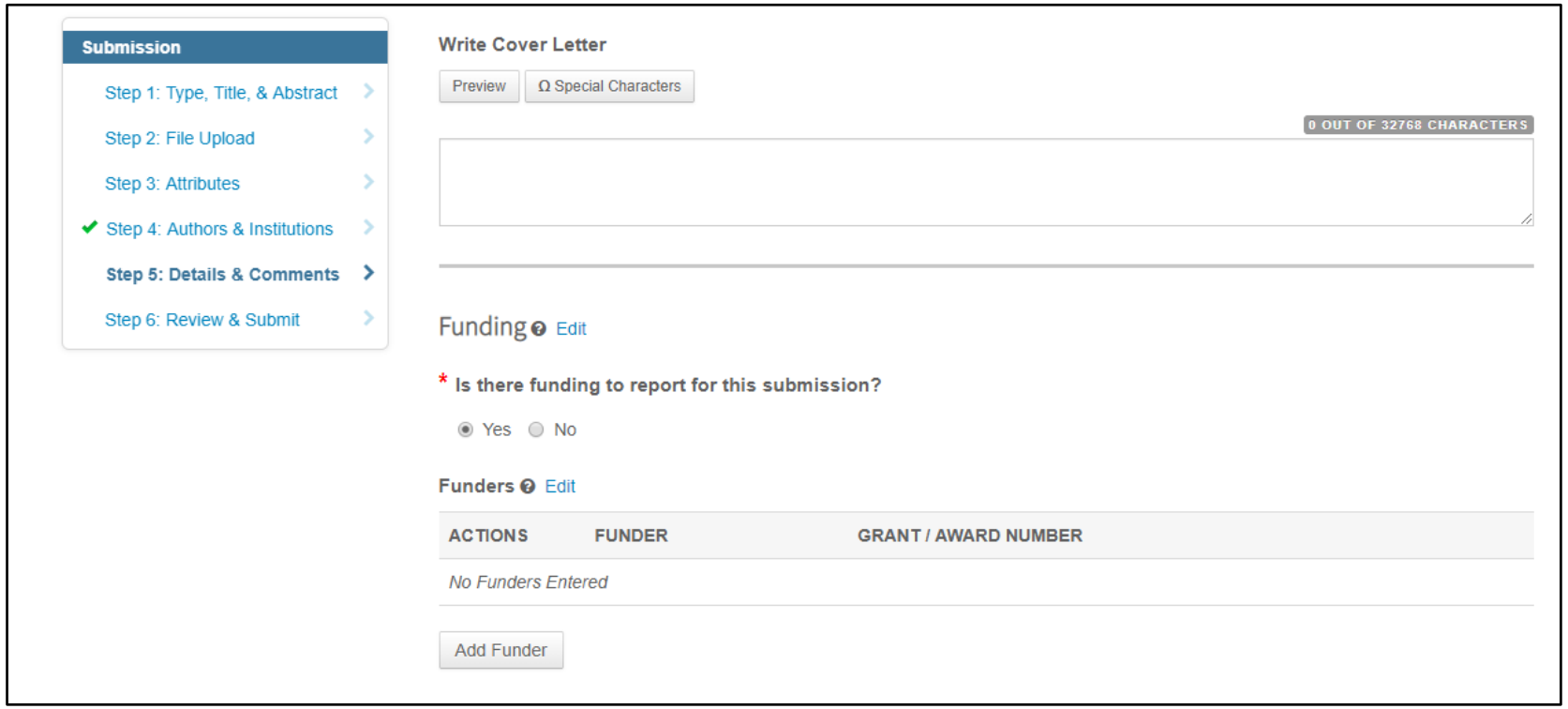
Ringgold is integrated in submission system



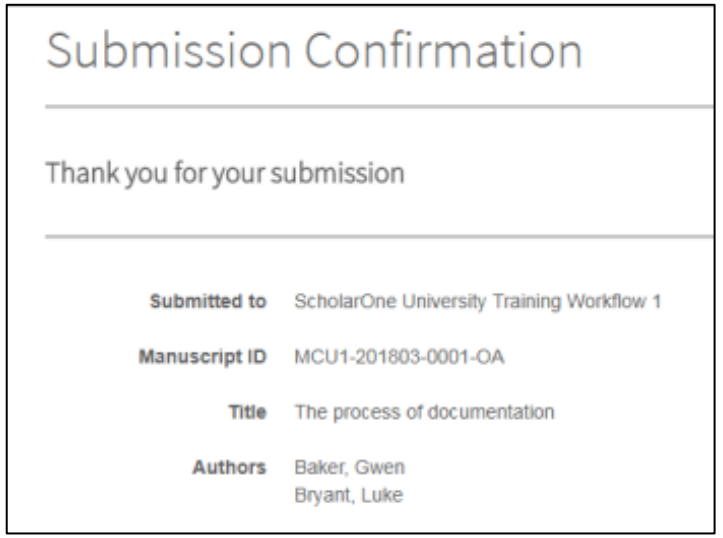
****Authors should use their institutional email address****

Submission – Step 5 & 6

Step 5: the author enters funder info (when applicable)



Step 6: the author reviews and submits

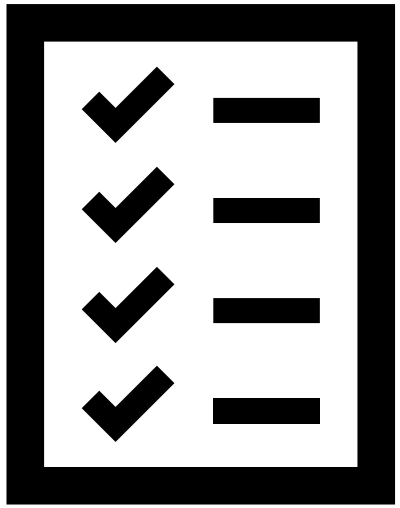


Articles can match a RLSC profile based on funder in addition to institutional affiliation

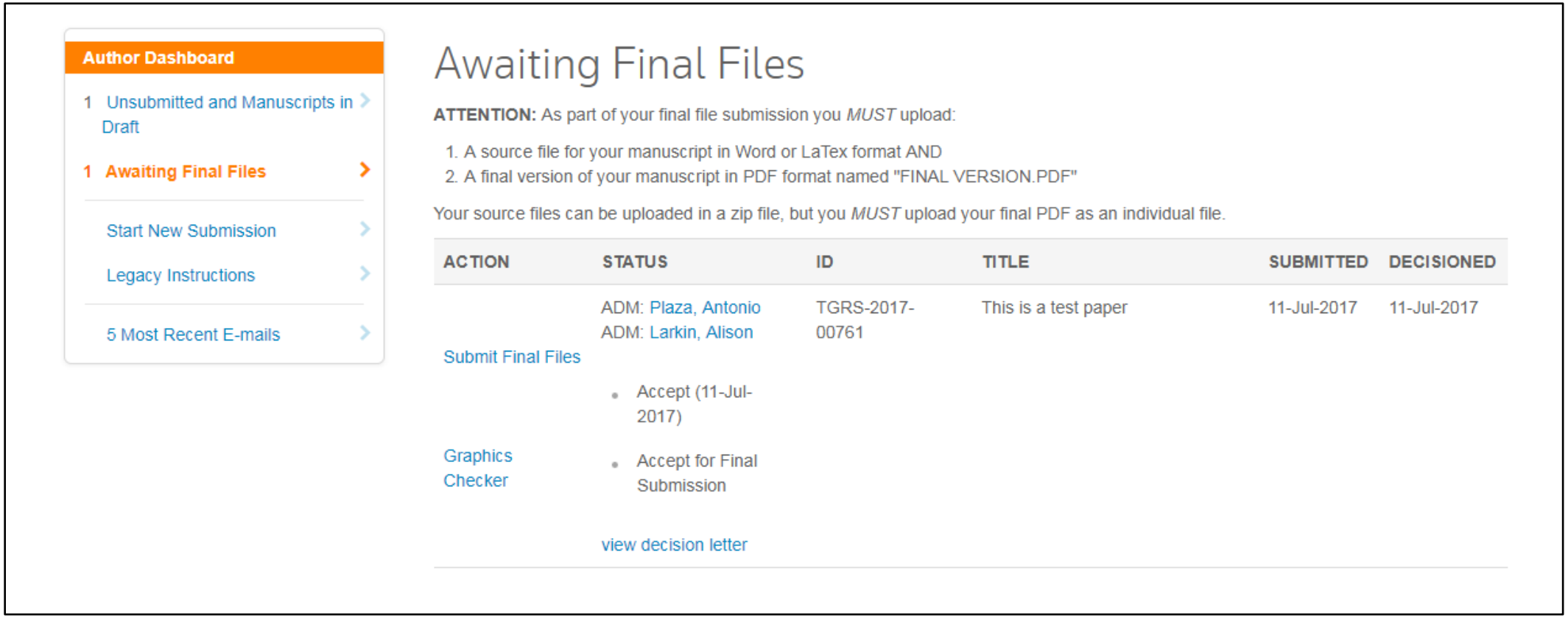
Author Process:
Acceptance and Copyright

Acceptance

- If the manuscript is accepted, the author will be prompted to upload the final files and choose a copyright license.
- Hybrid journal authors will choose to publish open access or traditional (closed).



Post acceptance – upload final files



Post acceptance – hybrid review

Open Access

* This publication is a hybrid journal, giving authors the choice of making their article freely accessible to users by paying an open access article processing charge (APC), or choosing traditional article publication, allowing access to users through subscription and other purchasing options. Now that your article has been accepted for publication you may enable unrestricted public access by selecting "yes" below. If you select yes, you commit to pay the US $2,350 APC.

Although voluntary page charges do not apply to open access article submissions, other applicable charges (such as over-length paper charges or a charge for the use of color in print format) will be billed separately once article formatting is complete (but prior to publication). Over-length paper charge details can be found here.

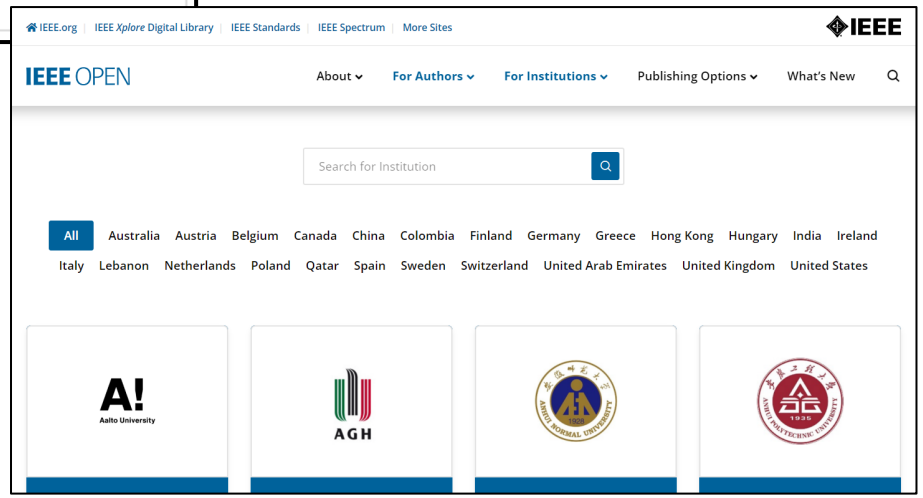
For any questions regarding IEEE open access policies, please refer to our Frequently Asked Questions on open access.

- ○ **Yes** - please make my article Open Access. I understand that there is a $2,350 APC associated with Open Access publication. Some institutions offer assistance for open access funding. Check our institutional partners list to see if yours is one.
- ○ **No** - my article is a traditional submission. I understand that over-length paper charges or co harges may still apply, as outlined above.

IEEE supports author choice when publishing in a hybrid journal.

Hybrid journal authors are asked to select open access or traditional (closed) after acceptance.

The institutional partners list goes to https://open.ieee.org/for-institutions/institutional-partners/



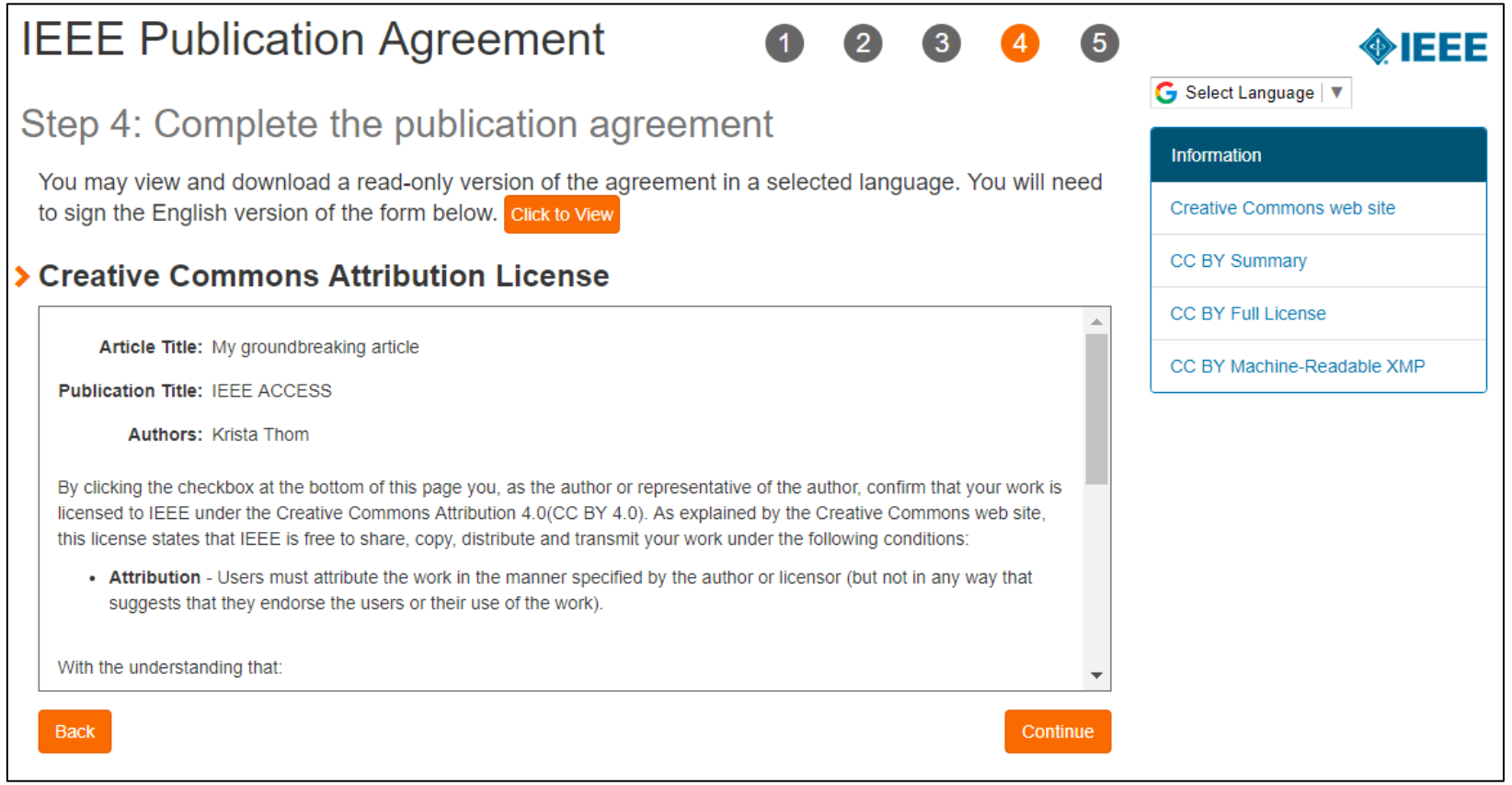
Post acceptance – copyright selection

After acceptance, authors will be prompted to choose a copyright license using the IEEE Electronic Copyright Form (eCF).

- Authors publishing in hybrid journals may choose between:
  - **CC-BY**: author retains copyright and the article is published open access
  - **CC-BY NC-ND**: author retains copyright in a more restrictive license than CC-BY in that the article may not be reused for commercial purposes, nor may the article be changed in any way
  - **Traditional** license in which copyright is transferred to the publisher and the article is published behind a paywall
- Authors publishing in gold journals may choose between **CC-BY** or **CC-BY NC-ND**.
- Authors should confirm any license restrictions set by the institution.

IEEE Electronic Copyright Form (eCF)

1. Confirm that the article details are correct.
2. Confirm the paper's originality
3. OA Authors must agree "to pay" an APC (Article Processing Charge)
4. Select and sign CC-BY license type
5. Download a copy of the agreement



IEEE

Post acceptance – hybrid journal reminder of funding

Subject line: Eligibility for Open Access funding - JPV-2021-03-0098-R, 10.1109/JPHOTOV.2021.3086455

Dear ${system/salutation} ${system/fname} ${system/lname}:

The following article has been accepted for publication by the IEEE, ${system/article_title}, ${system/doi} and may be eligible for open access funding.

We have identified you as belonging to an institution (${system/institution}) that has an open access agreement with IEEE. As such, you may be eligible for open access funding which covers 100% of the Open Access charges. If you would like to take advantage of this agreement and make your article open access, please contact your Journals Production Manager, ${system/journal_coordinator}, ${system/journal_coordinator_email} to request changing the publishing agreement from IEEE copyright to the Creative Commons (CCBY) license.

For more information about IEEE Open Access institutional partners visit:
https://institutions.open.ieee.org/for-institutions-funders/institutional-partners/

Thank you for publishing with IEEE!
${system/journal_coordinator}
${system/journal_coordinator_email}

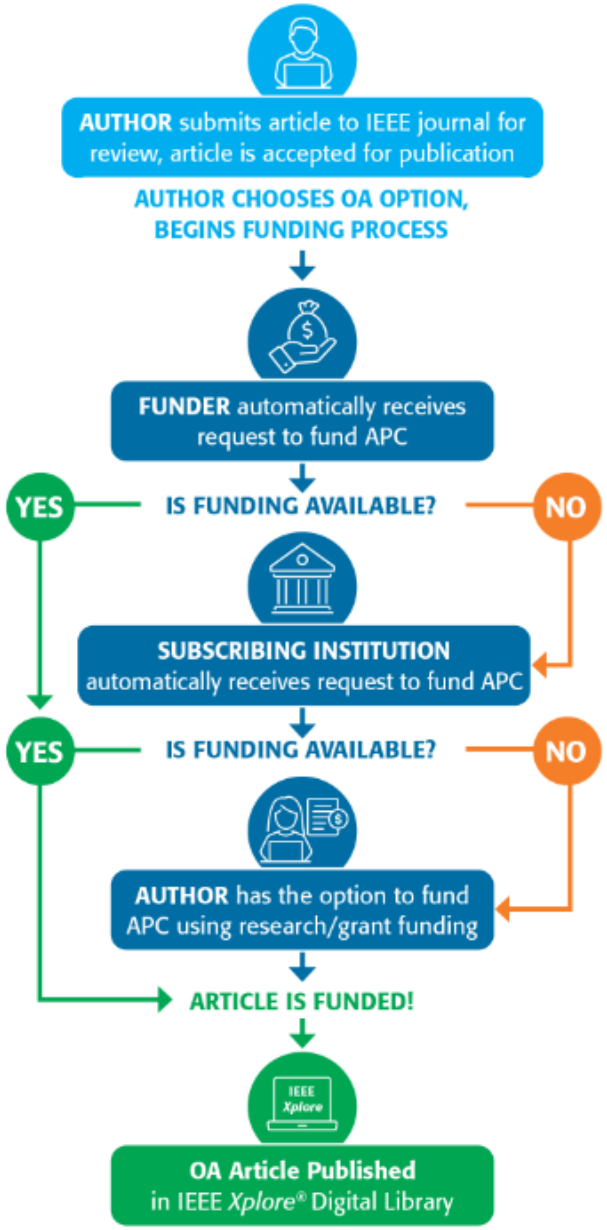
Authors who choose to publish traditional (non-OA) in a hybrid title will receive an email reminding them of the OA agreement with IEEE and their institution when an active OA agreement is present based on the corresponding author affiliation.

Note: Email is only sent if institutional RLSC profile matched by the article is touch-free.

APC Process:
RightsLink for Scientific Communications (RLSC)

IEEE OA OnDemand Overview

- All article processing charges (APCs) are handled through CCC RLSC.
- After acceptance, authors will receive an email prompting them to pay all charges through RLSC.
- RLSC will automatically send a funding request to any applicable funders, and then to the institution for review and approval.
- The article is matched to profiles in RLSC using author-provided affiliation data including Ringgold IDs and email domains.
- If no external funding is available, the author will receive a % discount off the APC.



Article Acceptance

A funding request is automatically sent to the funder and/or institution when a manuscript matches the touch free profile.

The author receives an email when the request is approved or denied by the funder and/or institution.

IEEE
Advancing Technology for Humanity

Your article has been accepted and will be published open access

Dear Mr. Ruben Garcia Alia,

Congratulations on being accepted for publication in *IEEE Geoscience and Remote Sensing Letters* for the following manuscript:

Manuscript DOI: 10.1109/JTEHM.2019.529447
Manuscript ID: TNS-003417-445
Manuscript Title: This is a touch free OA only profile test
Published by: Institute of Electrical and Electronics Engineers (IEEE)
Total Charges Covered: 2045.00 USD

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Sincerely,
Institute of Electrical and Electronics Engineers (IEEE)

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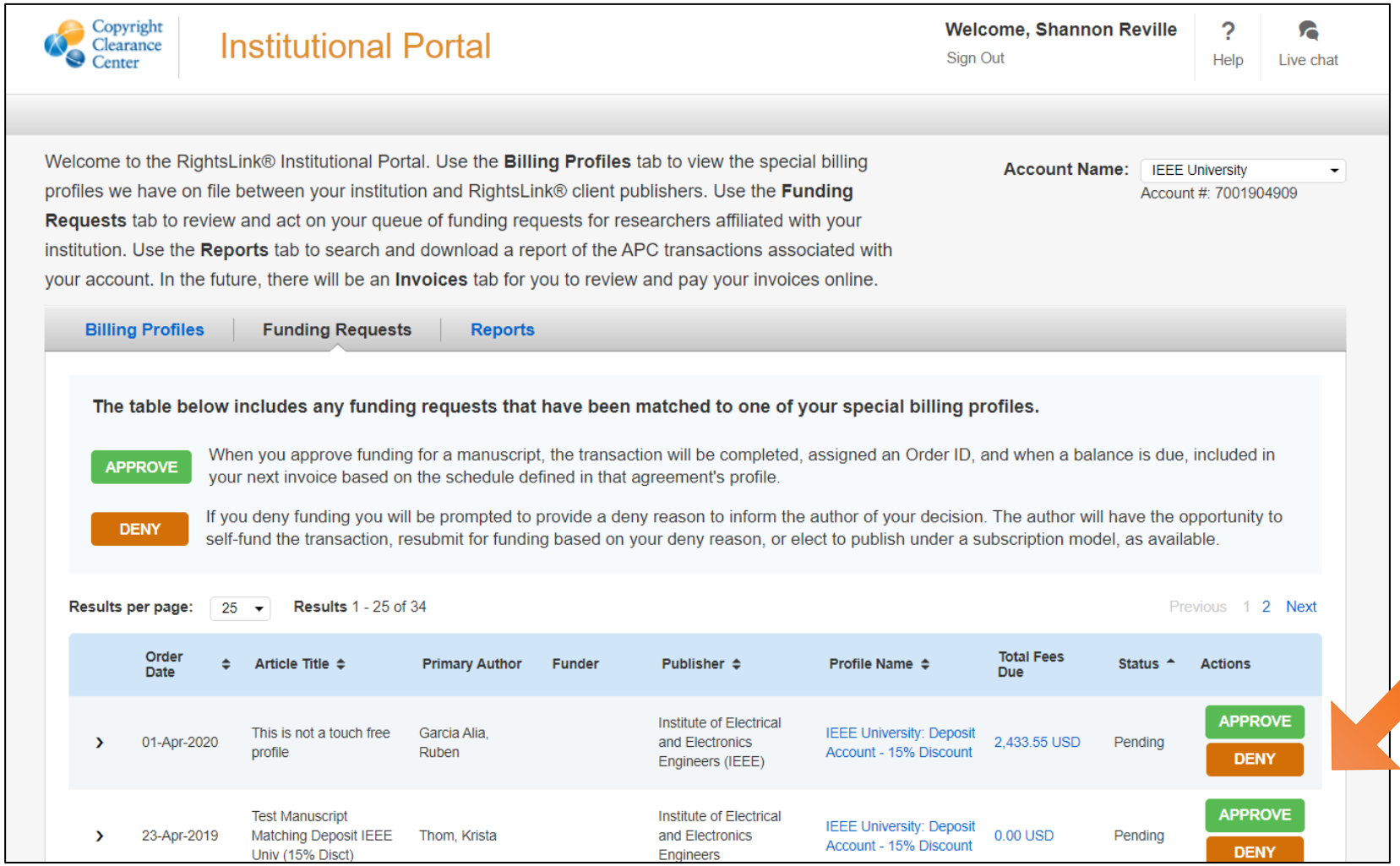
www.copyright.com

Copyright Clearance Center | RightsLink®

IEEE

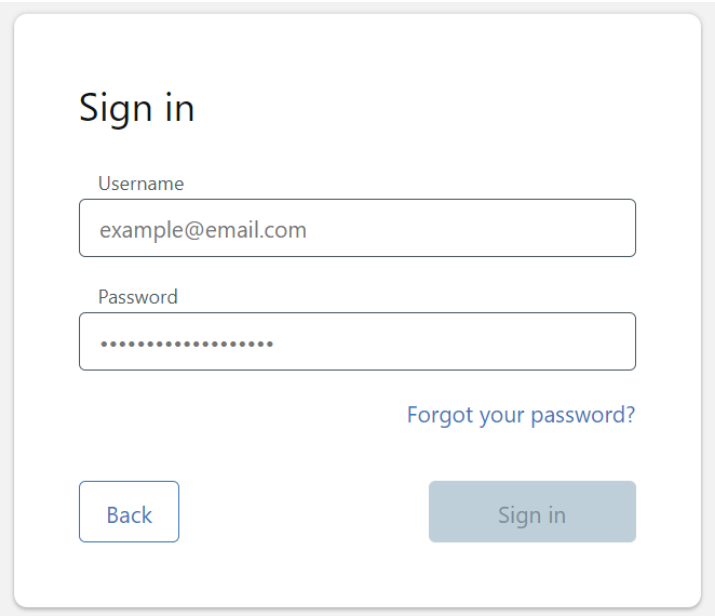
RLSC Institutional Portal dashboard

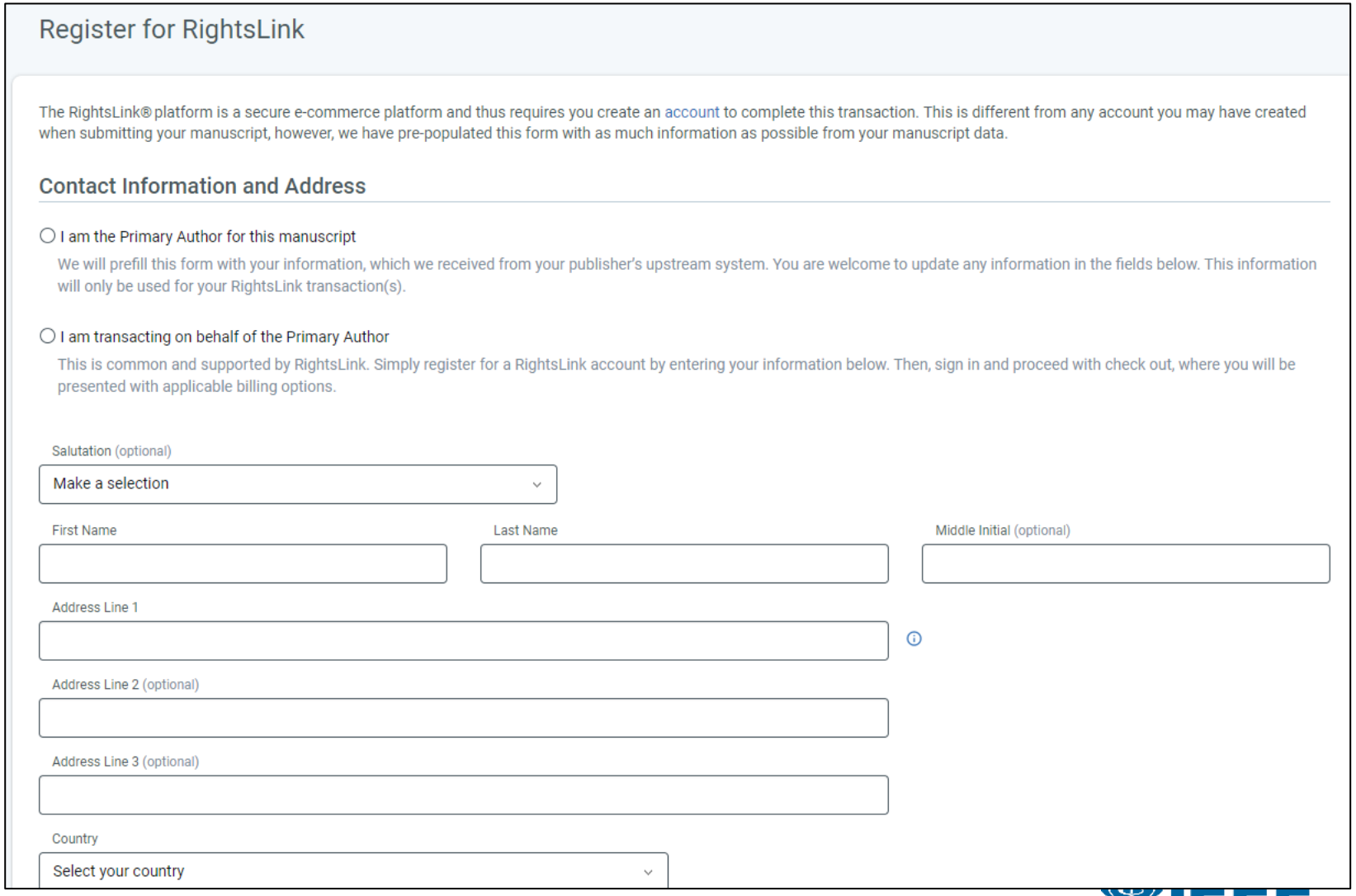


When administrators log in, they will be able to view and respond to outstanding requests.

Sign in to RLSC

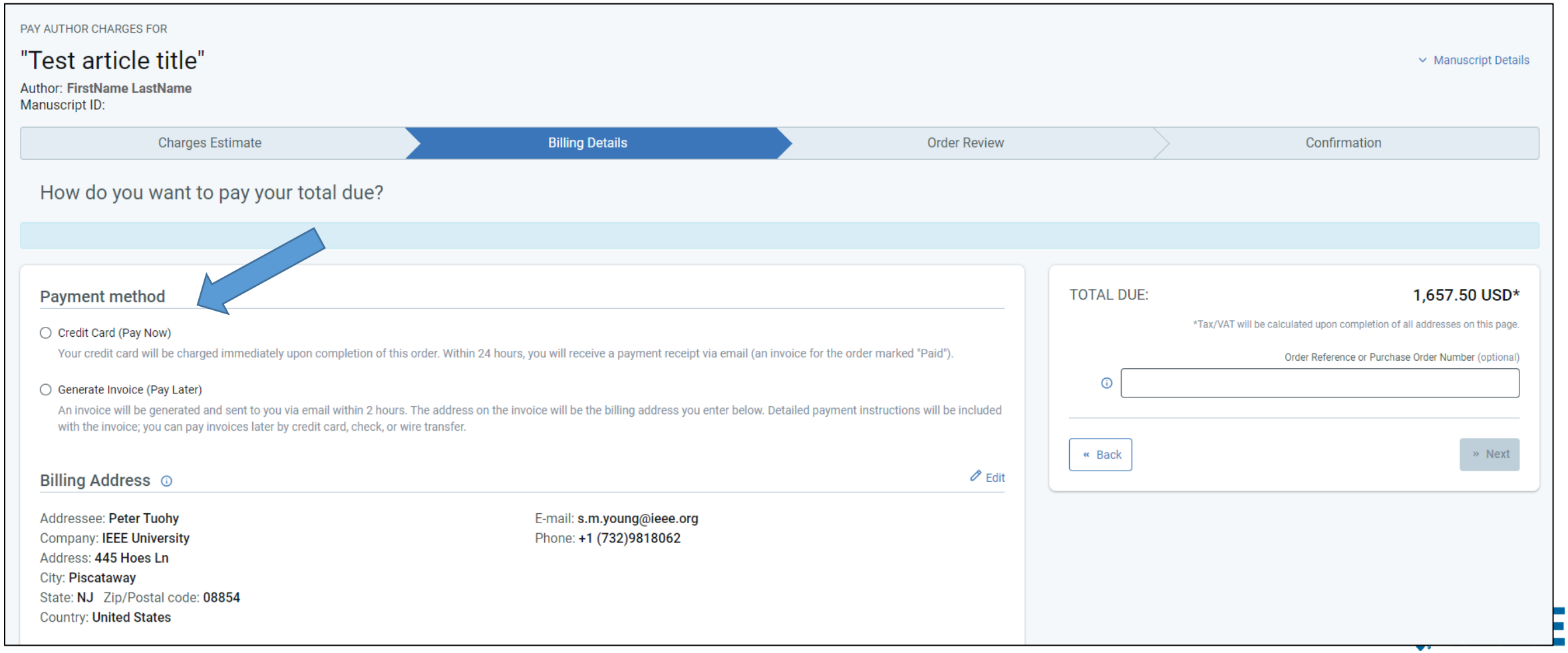
Next, authors will need to create a RLSC account or sign in to an existing account.



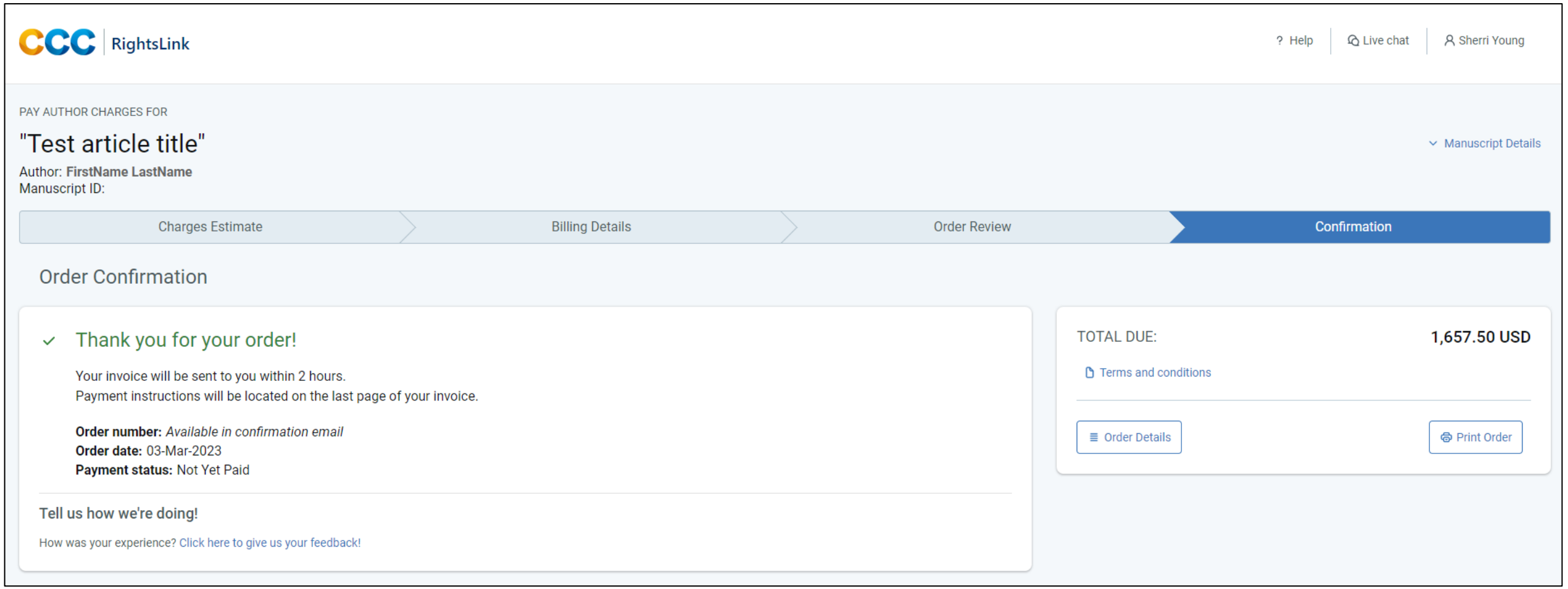


Order Review

Select to pay by credit card to complete the transaction. If your institution will be paying directly, you can select to generate an invoice.



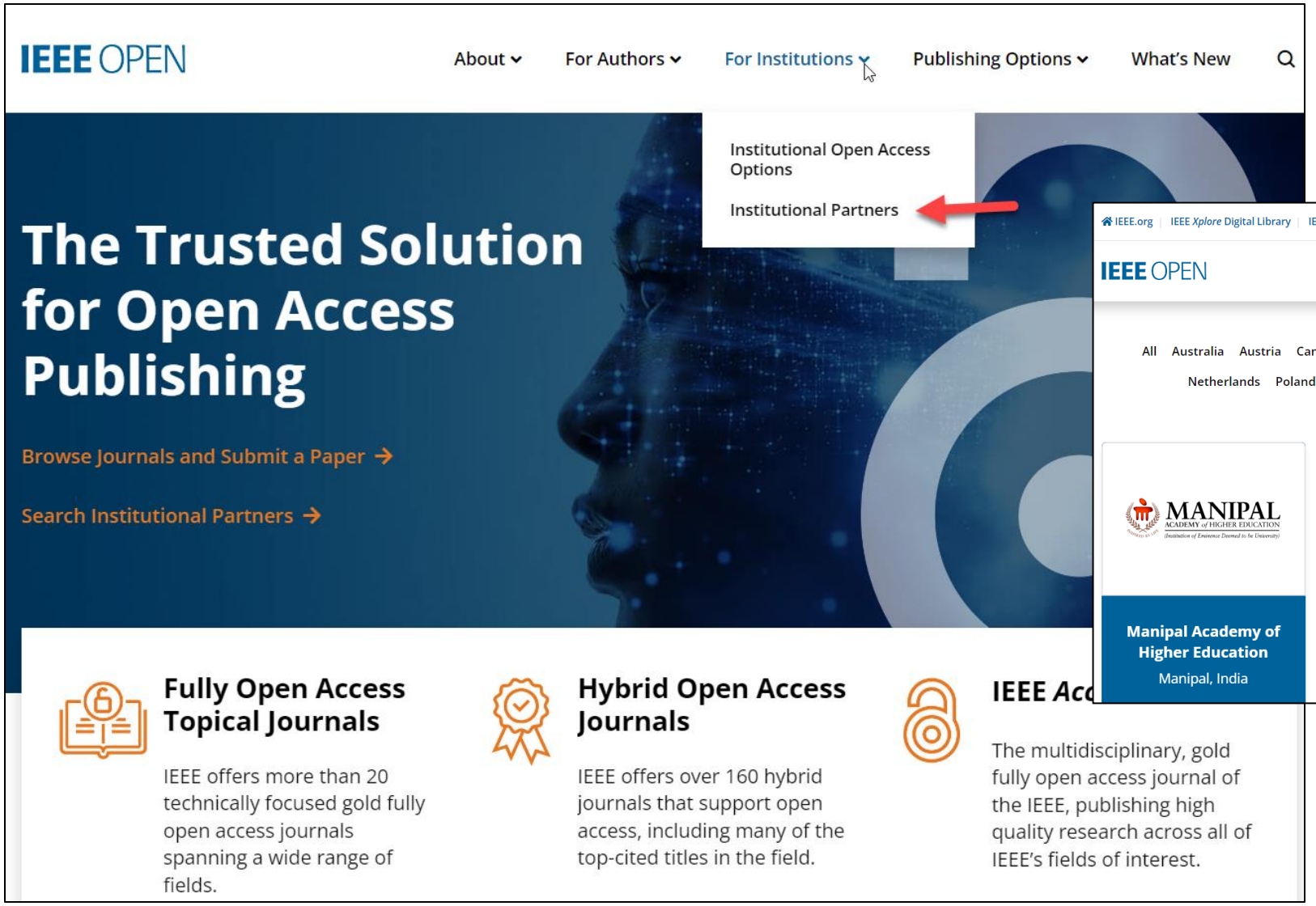
Order Confirmation

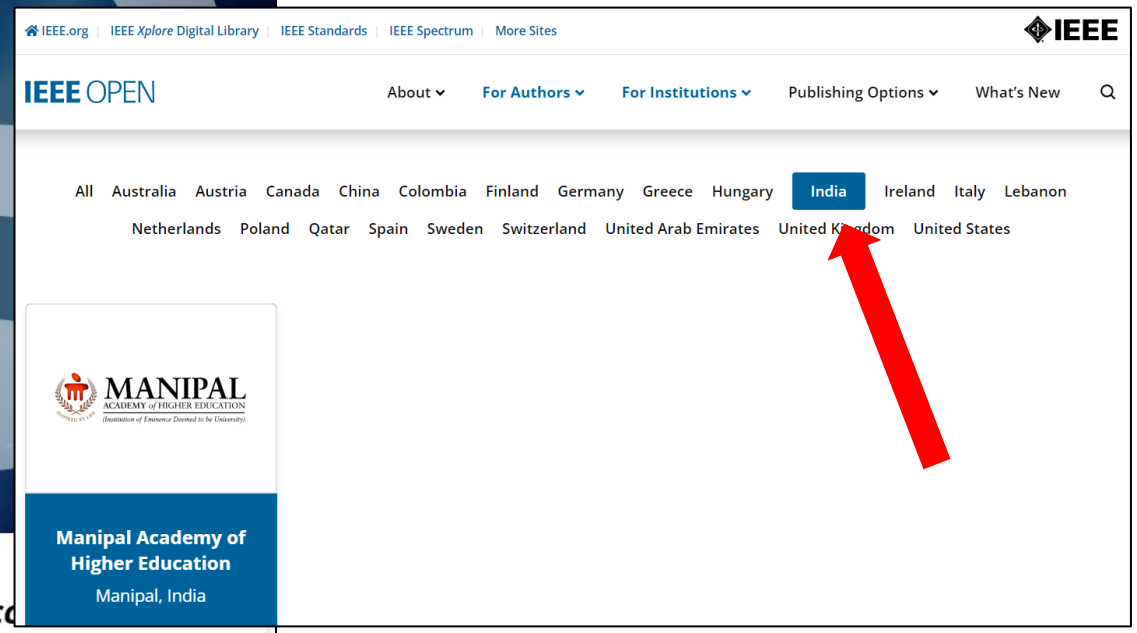


Additional OA resources

IEEE Open and IEEE Author Resources

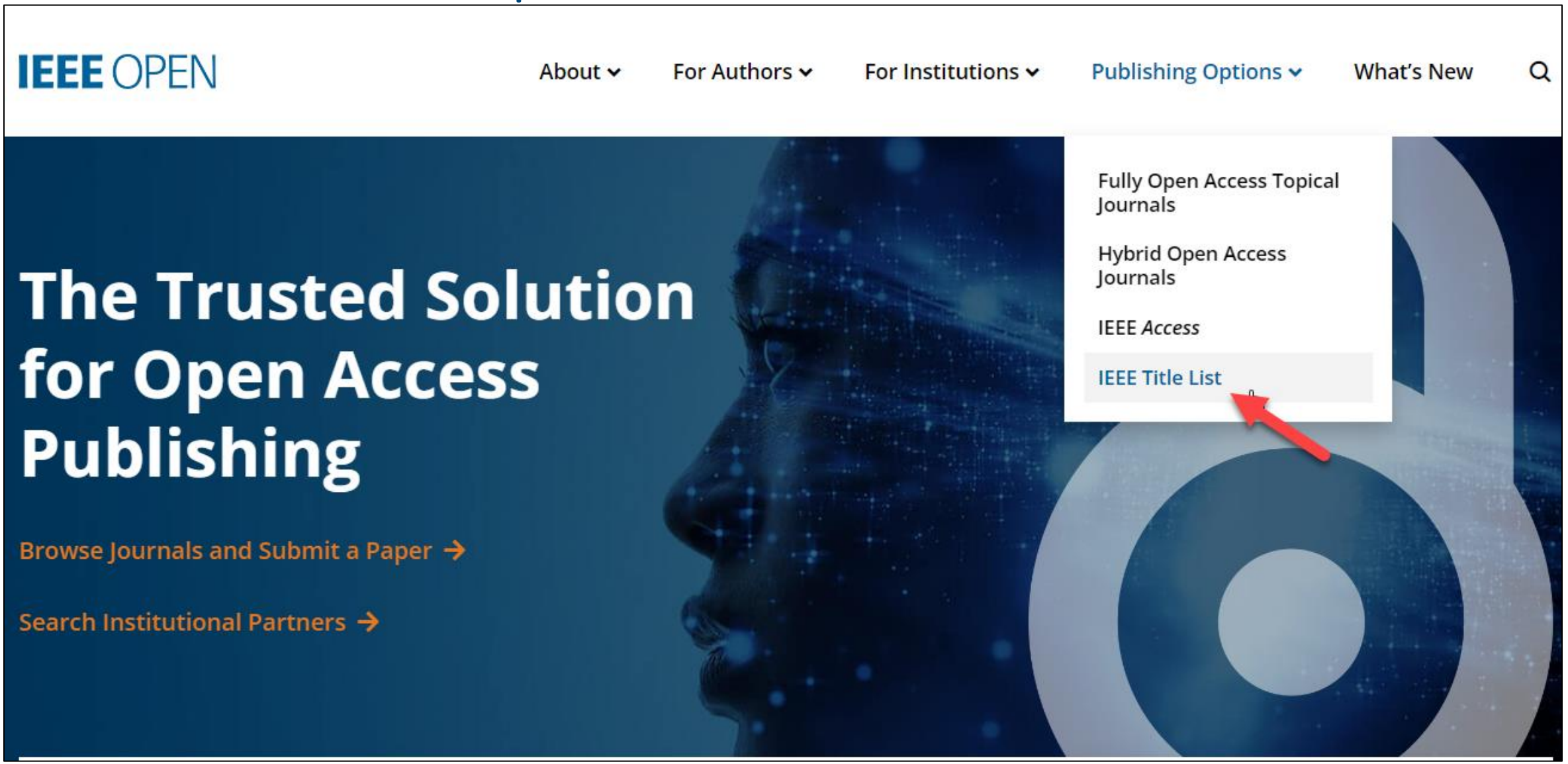
IEEE Open Access Partners





IEEE

IEEE Title List on IEEE Open



Additional Resources

IEEE Open
https://open.ieee.org/

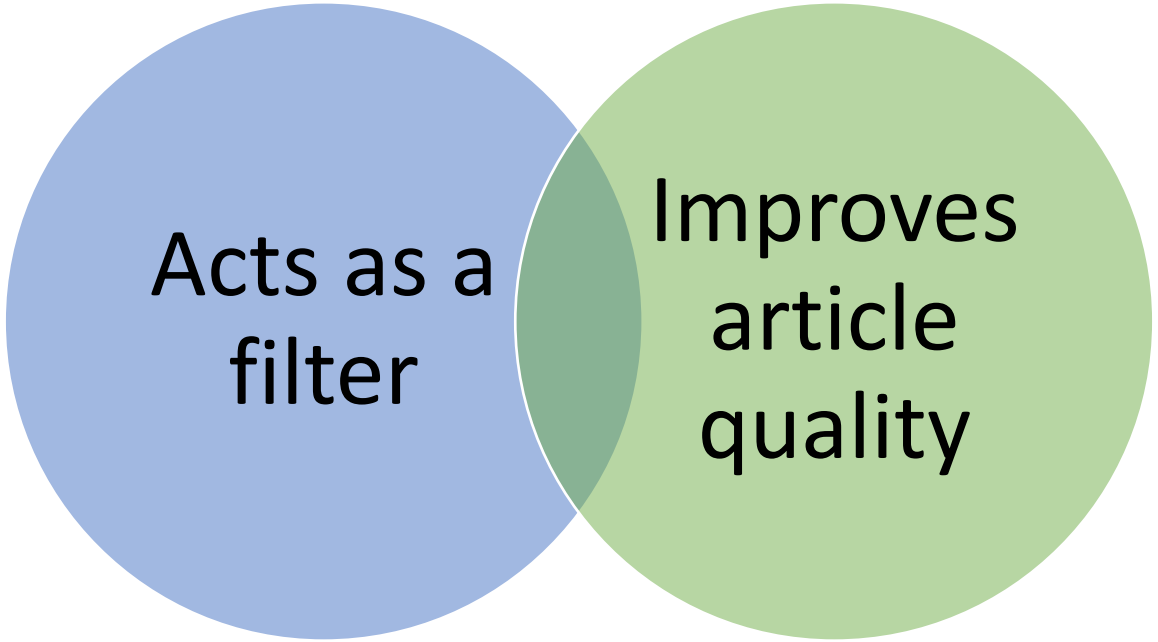
IEEE Author Center
https://ieeeauthorcenter.ieee.org/

IEEE Author Posting Guidelines
https://www.ieee.org/publications/rights/author-posting-policy.html

Peer Review

What is Peer Review?

Peer review is “the critical assessment of manuscripts submitted to [publications] by experts who are not part of the editorial staff.”[1]



[1]International Committee of Medical Journal Editors

Peer Review

How does the review process work?

- Editor-in-Chief gets the paper after it goes through content match check (Similarity Check) and “IEEE Prohibited Authors List” check
- If the paper is in scope for the journal, it is assigned to an editor (associate editor)
- Editor assigns the paper to at least two reviewers (sometimes more)
- Reviewers send their comments back to the editor
- Editor makes a recommendation to the EIC as follows
  - Accept
  - Revise & Resubmit
  - Reject
- The EIC makes the final decision and informs the corresponding author

Peer Review

What IEEE editors and reviewers are looking for

- Scope: does the article's topic fit in the publication?
- Validity: are the reported methods and rationale valid and accompanied by appropriate supporting data and references?
- Novelty: is this original material distinct from previous publications?
- Importance: is this a significant finding to an important problem?
- Clarity: are the ideas expressed clearly and concisely?
- Interest: will the publication's readers want to read it?
- Compliance: are all submission requirements met?

Peer Review

Why IEEE editors and reviewers reject papers

- The content is not a good fit for the publication
- There are serious scientific flaws:
  - Inconclusive results or incorrect interpretation
  - Fraudulent research
- It is poorly written
- It does not address a big enough problem or advance the scientific field
- The work was previously published
- The quality is not good enough for the journal
- The paper does not make a strong enough case to convince reviewers

IEEE

Peer Review

You've received a decision… now what?

Read the decision email in full

- Editor's comments
- Reviewers' comments and suggestions
- Instructions on how to submit a revision
- The deadline to submit the revision

Determine if you wish to revise

- Are you confident that the revision will be accepted?
- Do your co-authors wish to revise?
- Can you meet the revision deadline?

Get ready for the revision process

- Obtain any additional materials you need
- Manage your file versions
- Begin a "response to reviewers" document

Tips for addressing reviewers' comments

- Keep an open mind
- Remember it's your job to explain your research fully
- Write a clear and well-organized response letter
- Implement suggestions when possible (or give a reason why not)
- Respond to every comment
- Offer respectful and detailed replies
- Be alert for ethical issues

How Does One Become a Peer Reviewer?

- Select a few journals in a subject area, visit those journals' online submission websites (accessible via each journal's homepage on IEEE *Xplore*) and create a user account. Provide keywords about your area of expertise in your account so that the editor can match submitted manuscripts with your area of expertise.
- Contact the editor directly to offer services by going to the 'About' tab on a journal homepage on IEEE *Xplore* and looking for the editor's email address.

Paper Structure

Paper Structure

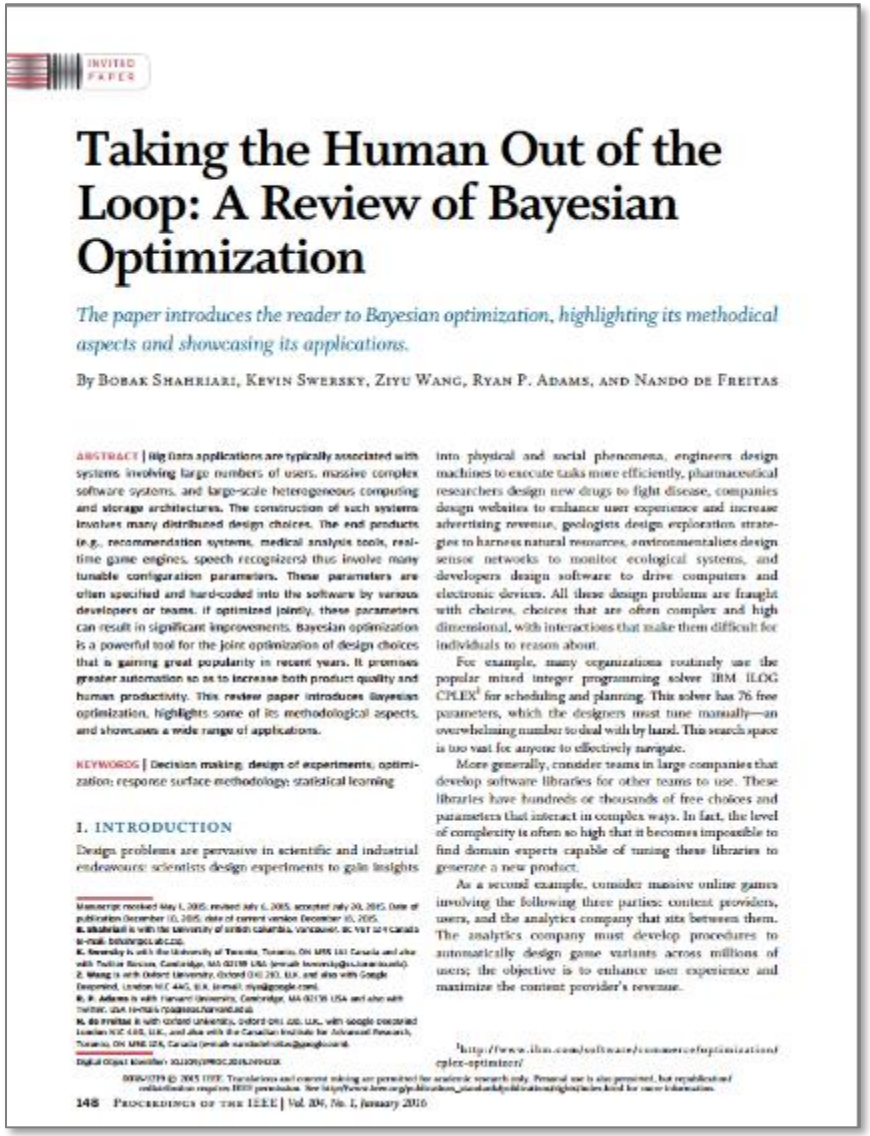
Before you begin writing…

- Draft an outline
  - Why? What? How?
  - Organize data by importance (not chronological)
- Choose a journal or conference
  - Read & follow guidelines
  - Use the template
- Tell a story
  - Have a theme and punchline
  - Avoid data dumping

Paper Structure

Elements of a manuscript

- Title
- Author(s)
- Abstract
- Introduction
- Approach
- Results
- Discussion
- Conclusions
- Acknowledgements
- References



INVITED PAPER

Taking the Human Out of the Loop: A Review of Bayesian Optimization

The paper introduces the reader to Bayesian optimization, highlighting its methodical aspects and showcasing its applications.

By Bobak Shahriari, Kevin Swersky, Ziyu Wang, Ryan P. Adams, and Nando de Freitas

ABSTRACT | Big data applications are typically associated with systems involving large numbers of users, massive complex software systems, and large-scale heterogeneous computing and storage architectures. The construction of such systems involves many distributed design choices. The end products (e.g., recommendation systems, medical analysis tools, real-time game engines, speech recognizers) thus involve many tunable configuration parameters. These parameters are often specified and hard-coded into the software by various developers or teams. If optimized jointly, these parameters can result in significant improvements. Bayesian optimization is a powerful tool for the joint optimization of design choices that is gaining great popularity in recent years. It promises greater automation so as to increase both product quality and human productivity. This review paper introduces Bayesian optimization, highlights some of its methodological aspects, and showcases a wide range of applications.

KEYWORDS | Decision making; design of experiments; optimization; response surface methodology; statistical learning

I. INTRODUCTION

Design problems are pervasive in scientific and industrial endeavours: scientists design experiments to gain insights into physical and social phenomena, engineers design machines to execute tasks more efficiently, pharmaceutical researchers design new drugs to fight disease, companies design websites to enhance user experience and increase advertising revenue, geologists design exploration strategies to harness natural resources, environmentalists design sensor networks to monitor ecological systems, and developers design software to drive computers and electronic devices. All these design problems are fraught with choices, choices that are often complex and high dimensional, with interactions that make them difficult for individuals to reason about.

For example, many organizations routinely use the popular mixed integer programming solver IBM ILOG CPLEX[1] for scheduling and planning. This solver has 76 free parameters, which the designers must tune manually—an overwhelming number to deal with by hand. This search space is too vast for anyone to effectively navigate.

More generally, consider teams in large companies that develop software libraries for other teams to use. These libraries have hundreds or thousands of free choices and parameters that interact in complex ways. In fact, the level of complexity is often so high that it becomes impossible to find domain experts capable of tuning these libraries to generate a new product.

As a second example, consider massive online games involving the following three parties: content providers, users, and the analytics company that sits between them. The analytics company must develop procedures to automatically design game variants across millions of users; the objective is to enhance user experience and maximize the content provider's revenue.

[1]http://www.ibm.com/software/commerce/optimization/cplex-optimizer/

148 Proceedings of the IEEE | Vol. 104, No. 1, January 2016

Paper Structure

Title

An effective title should…

- Be specific, concise, and descriptive
- Grab the reader's attention
- Answer the reader's question: *Is this article relevant to me?*
- Think about what you would search for if you were looking for articles related to your research. Be sure to incorporate those keywords into your title.
- Describe the content of a paper using the fewest possible words

Tip: Communicate the major finding in the title

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Paper Structure

Title – Best Practices

✓ *A Human Expert-based Approach to Electrical Peak Demand Management*

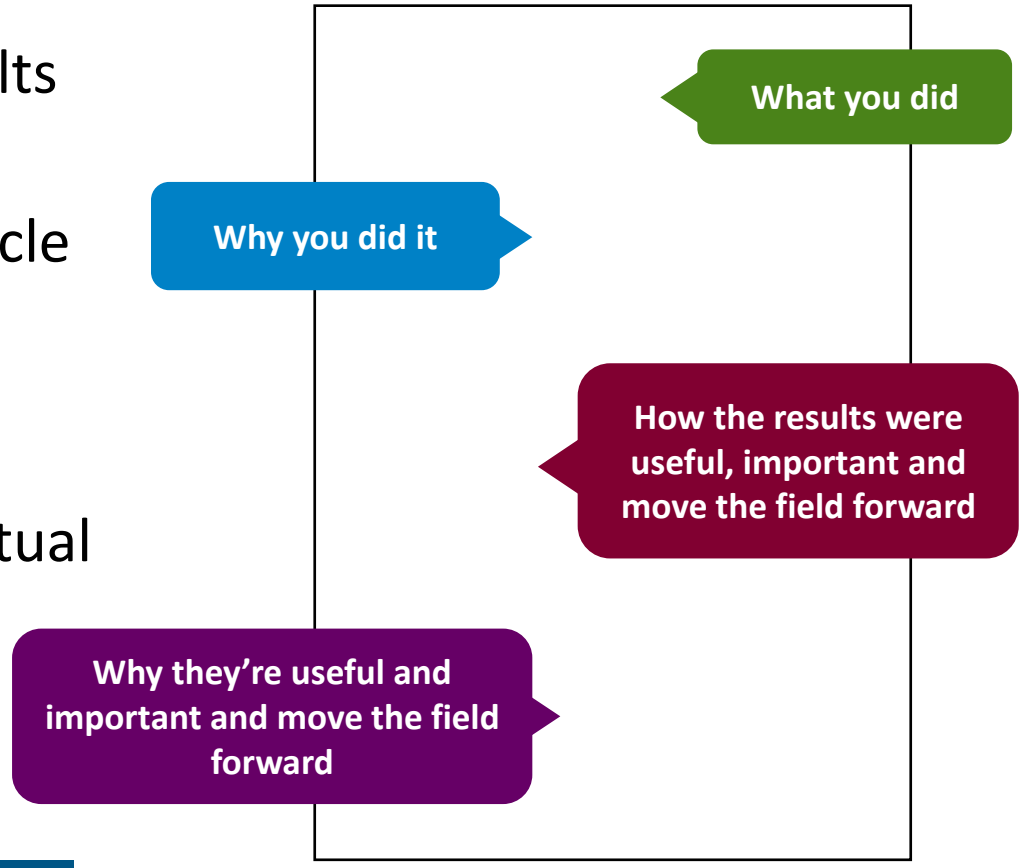
VS

✗ *A better approach of managing environmental and energy sustainability via a study of different methods of electric load forecasting*

Paper Structure

Abstract

- Concise summary of research conducted, results obtained, and conclusions reached
- A “stand-alone” condensed version of the article
- 250 words or less
- Uses keywords and index terms
- Written in the past tense although general factual statements can be written in present tense



Tip: Make the reader want to learn more

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Paper Structure

Abstract Dos and Don’ts

✓

The objective of this paper was to propose a human expert-based approach to electrical peak demand management. The proposed approach helped to allocate demand curtailments (MW) among distribution substations (DS) or feeders in an electric utility service area based on requirements of the central load dispatch center. Demand curtailment allocation was quantified taking into account demand response (DR) potential and load curtailment priority of each DS, which can be determined using DS loading level, capacity of each DS, customer types (residential/commercial) and load categories (deployable, interruptible or critical). Analytic Hierarchy Process (AHP) was used to model a complex decision-making process according to both expert inputs and objective parameters. Simulation case studies were conducted to demonstrate how the proposed approach can be implemented to perform DR using real-world data from an electric utility. Simulation results demonstrated that the proposed approach is capable of achieving realistic demand curtailment allocations among different DSs to meet the peak load reduction requirements at the utility level.

VS

✗

This paper presents and assesses a framework for an engineering capstone design program. **We explain** how student preparation, project selection, and instructor mentorship are the three key elements that must be addressed before the capstone experience is ready for the students. **Next, we describe** a way to administer and execute the capstone design experience including design workshops and lead engineers. **We describe the importance** in assessing the capstone design experience and report recent assessment results of our framework. **We comment** specifically on what students thought were the most important aspects of their experience in engineering capstone design and provide quantitative insight into what parts of the framework are most important.

First person, present tense
No actual results; only describes the organization of the paper

Paper Structure

Think About Your Future Reader

- Sprinkle keywords in title and abstract
- Use terms you would use to conduct a search on your topic
- Include both broad and narrow terminology

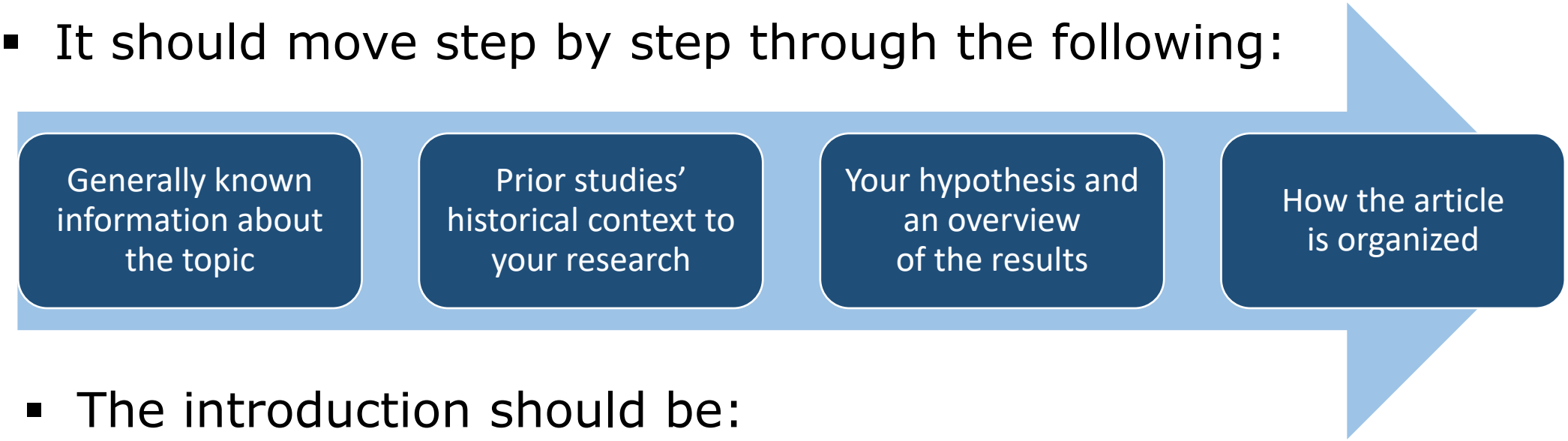
Deep Learning for Health Informatics

With a massive influx of multimodality data, the role of data analytics in health informatics has grown rapidly in the last decade. This has also prompted increasing interests in the generation of analytical, data driven models based on machine learning in health informatics. Deep learning, a technique with its foundation in artificial neural networks, is emerging in recent years as a powerful tool for machine learning, promising to reshape the future of artificial intelligence. Rapid improvements in computational power, fast data storage, and parallelization have also contributed to the rapid uptake of the technology in addition to its predictive power and ability to generate automatically optimized high-level features and semantic interpretation from the input data. This article presents a comprehensive up-to-date review of research employing deep learning in health informatics, providing a critical analysis of the relative merit, and potential pitfalls of the technique as well as its future outlook. The paper mainly focuses on key applications of deep learning in the fields of translational bioinformatics, medical imaging, pervasive sensing, medical informatics, and public health.

Paper Structure

Introduction

- A description of the problem you researched
- It should move step by step through the following:



- The introduction should be:
  - Specific, not too broad or vague
  - About 2 pages
  - Written in the present tense

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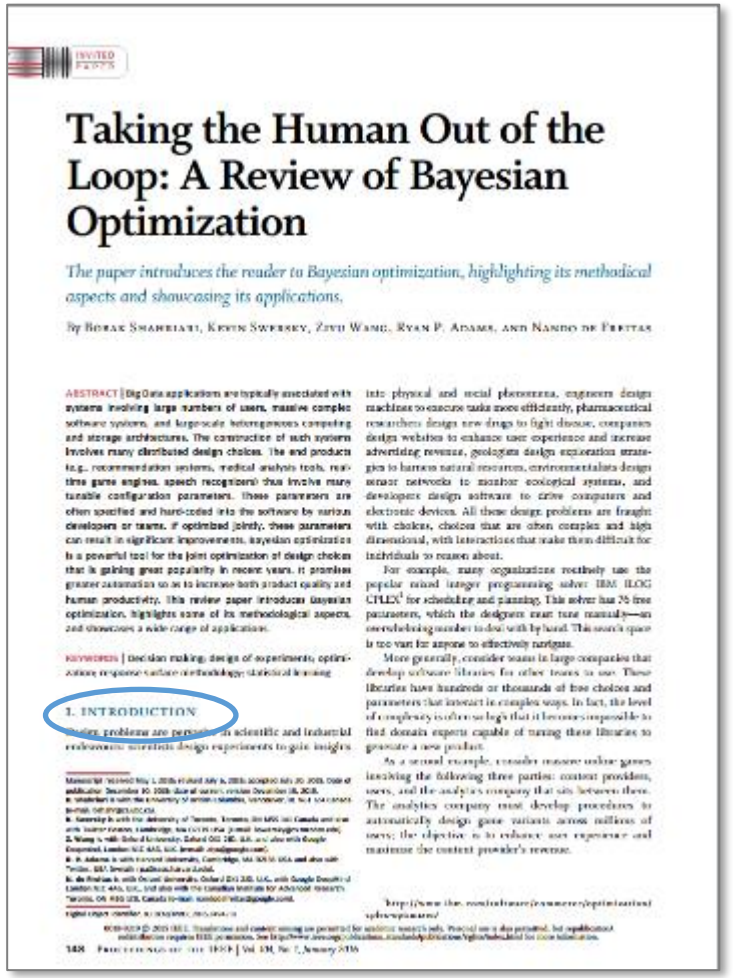
Paper Structure

Introduction

- Goal: what question you're trying to answer
- Motivation: why you're asking the question
  - A paragraph stating the problem to be solved and its importance
- Novelty: Literature review
  - Several paragraphs describing previous state of the art
  - Last paragraph states what is new in this paper, how it is different from work of others as well as your own prior work and finally the organization of the paper



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1. INTRODUCTION

Paper Structure

Methodology

- Problem formulation and the processes used to solve the problem, prove or disprove the hypothesis
- Use illustrations to clarify ideas and support conclusions

Tables

Present representative data or used when exact values are important to show

Figures

Quickly show ideas/conclusions that would require detailed explanations

Fig. A

Graphs

Show relationships between data points or trends in data

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Paper Structure

Results/Discussion

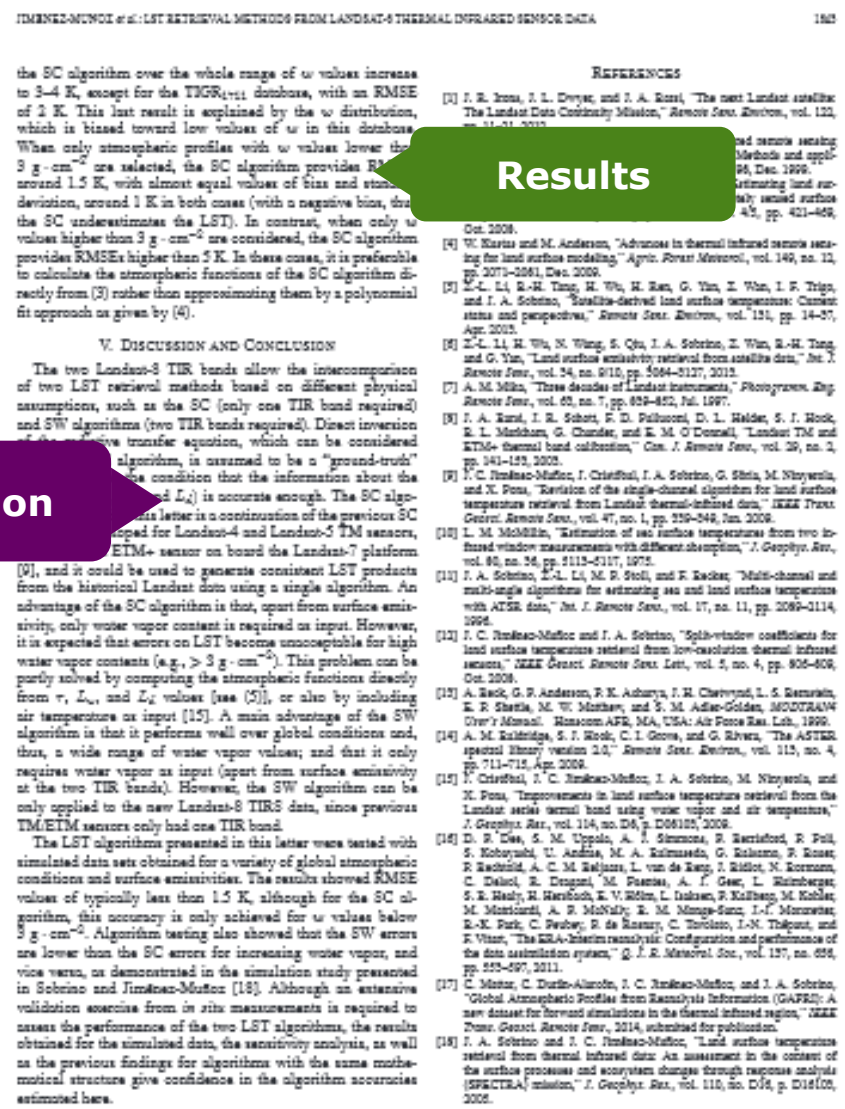
Demonstrate that you solved the problem or made significant advances

Results: Summarizes the Data

- Should be clear and concise
- Use figures or tables with narrative to illustrate findings

Discussion: Interprets the Results

- Why your research offers a new solution
- How can it benefit other researchers and professionals



JIMÉNEZ-MUÑOZ *et al.*: LST RETRIEVAL METHODS FROM LANDSAT-8 THERMAL INFRARED SENSOR DATA 1963

the SC algorithm over the whole range of w values increase to 3–4 K, except for the $TIGR_{v1}$ database, with an RMSE of 2 K. This last result is explained by the w distribution, which is biased toward low values of w in this database. When only atmospheric profiles with w values lower than 3 g · cm^{-2} are selected, the SC algorithm provides RMSEs around 1.5 K, with almost equal values of bias and standard deviation, around 1 K in both cases (with a negative bias, that the SC underestimates the LST). In contrast, when only w values higher than 3 g · cm^{-2} are considered, the SC algorithm provides RMSEs higher than 5 K. In these cases, it is preferable to calculate the atmospheric functions of the SC algorithm directly from (3) rather than approximating them by a polynomial fit approach as given by (4).

V. Discussion and Conclusion

The two Landsat-8 TIR bands allow the intercomparison of two LST retrieval methods based on different physical assumptions, such as the SC (only one TIR band required) and SW algorithms (two TIR bands required). Direct inversion of the radiative transfer equation, which can be considered a physical algorithm, is assumed to be a "ground-truth" algorithm, on the condition that the information about the atmosphere (τ and $L_\uparrow$) is accurate enough. The SC algorithm in this letter is a continuation of the previous SC algorithm developed for Landsat-4 and Landsat-5 TM sensors, and the ETM+ sensor on board the Landsat-7 platform [9], and it could be used to generate consistent LST products from the historical Landsat data using a single algorithm. An advantage of the SC algorithm is that, apart from surface emissivity, only water vapor content is required as input. However, it is expected that errors on LST become unacceptable for high water vapor contents (e.g., > 3 g · cm^{-2}). This problem can be partly solved by computing the atmospheric functions directly from τ, $L_\uparrow$, and $L_\downarrow$ values [see (5)], or also by including air temperature as input [15]. A main advantage of the SW algorithm is that it performs well over global conditions and, thus, a wide range of water vapor values; and that it only requires water vapor as input (apart from surface emissivity at the two TIR bands). However, the SW algorithm can be only applied to the new Landsat-8 TIRS data, since previous TM/ETM sensors only had one TIR band.

The LST algorithms presented in this letter were tested with simulated data sets obtained for a variety of global atmospheric conditions and surface emissivities. The results showed RMSE values of typically less than 1.5 K, although for the SC algorithm, this accuracy is only achieved for w values below 3 g · cm^{-2}. Algorithm testing also showed that the SW errors are lower than the SC errors for increasing water vapor, and vice versa, as demonstrated in the simulation study presented in Sobrino and Jiménez-Muñoz [18]. Although an extensive validation exercise from *in situ* measurements is required to assess the performance of the two LST algorithms, the results obtained for the simulated data, the sensitivity analysis, as well as the previous findings for algorithms with the same mathematical structure give confidence in the algorithm accuracies estimated here.

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Results

Discussion

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Paper Structure

Conclusion

- Explain what the research has achieved
  - As it relates to the problem stated in the Introduction
  - Revisit the key points in each section
  - Include a summary of the main findings and implications for the field
- Provide benefits and shortcomings of:
  - The solution presented
  - Your research and methodology
- Suggest future areas for research

Tip: Answer the question "so what?"

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- Quick note on methodology
- Pull from your abstract and conclusion

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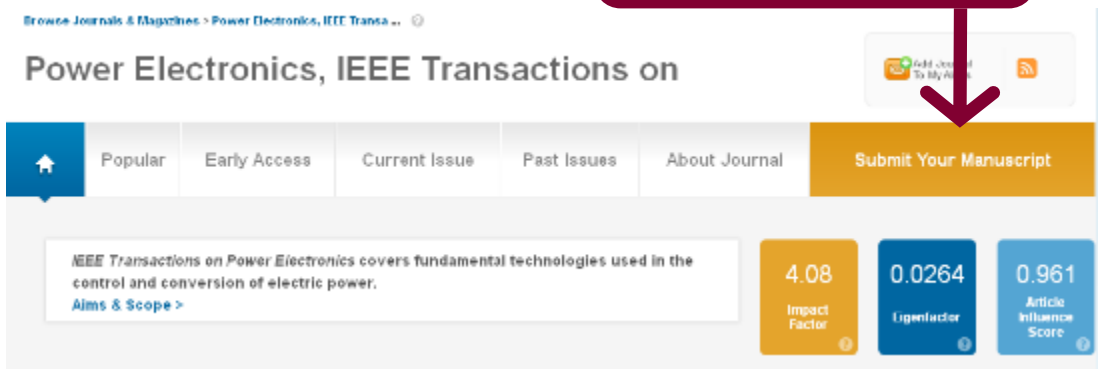

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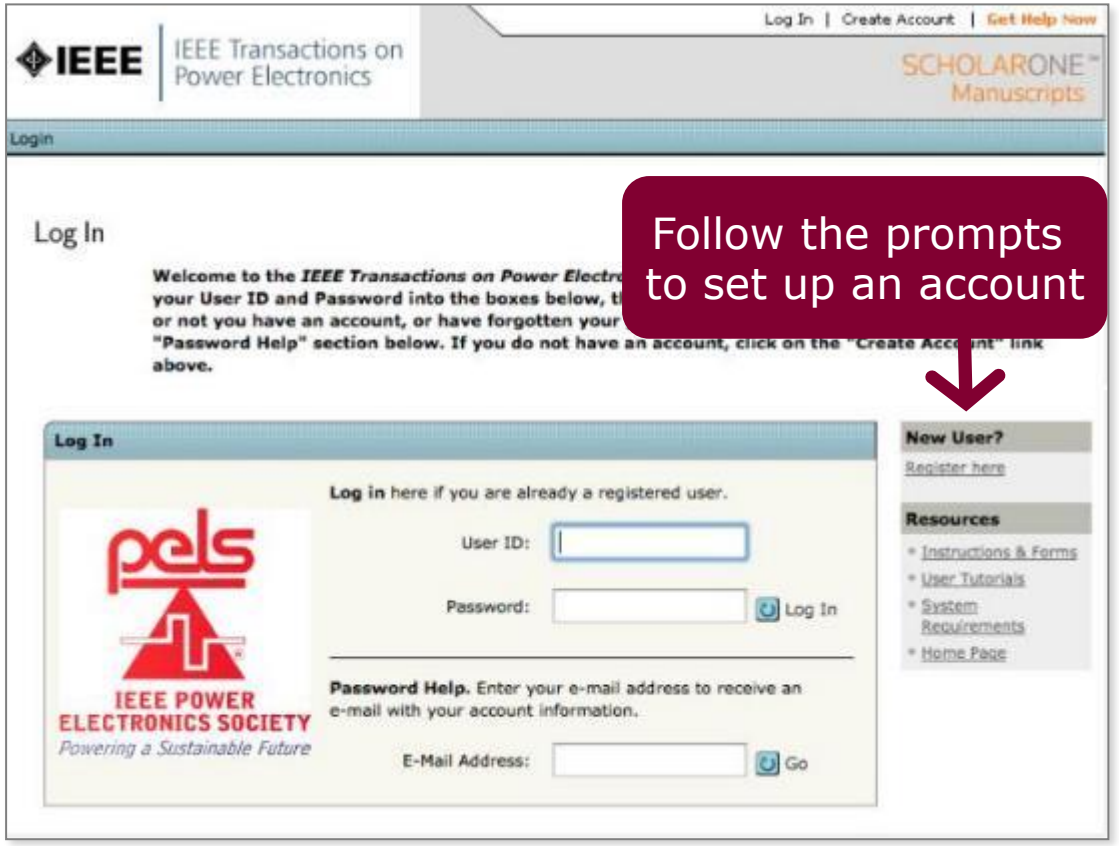

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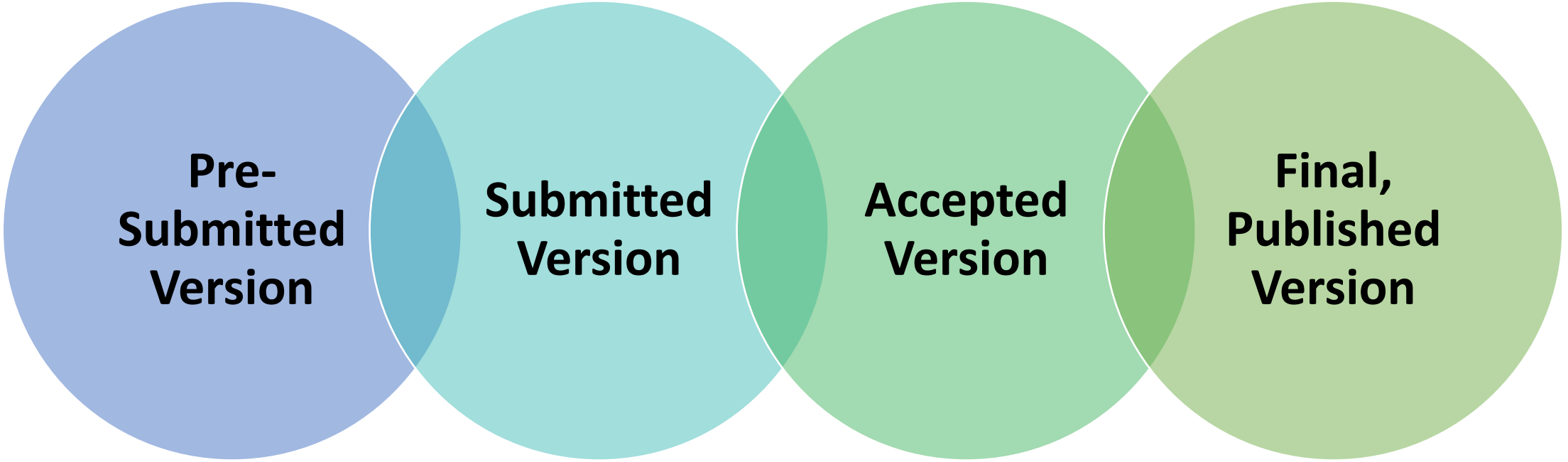

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Gary S. May (Fellow, IEEE) received the B.S. degree in electrical engineering from the Georgia Institute of Technology (Georgia Tech), Atlanta, GA, USA, in 1985, and the M.S. and

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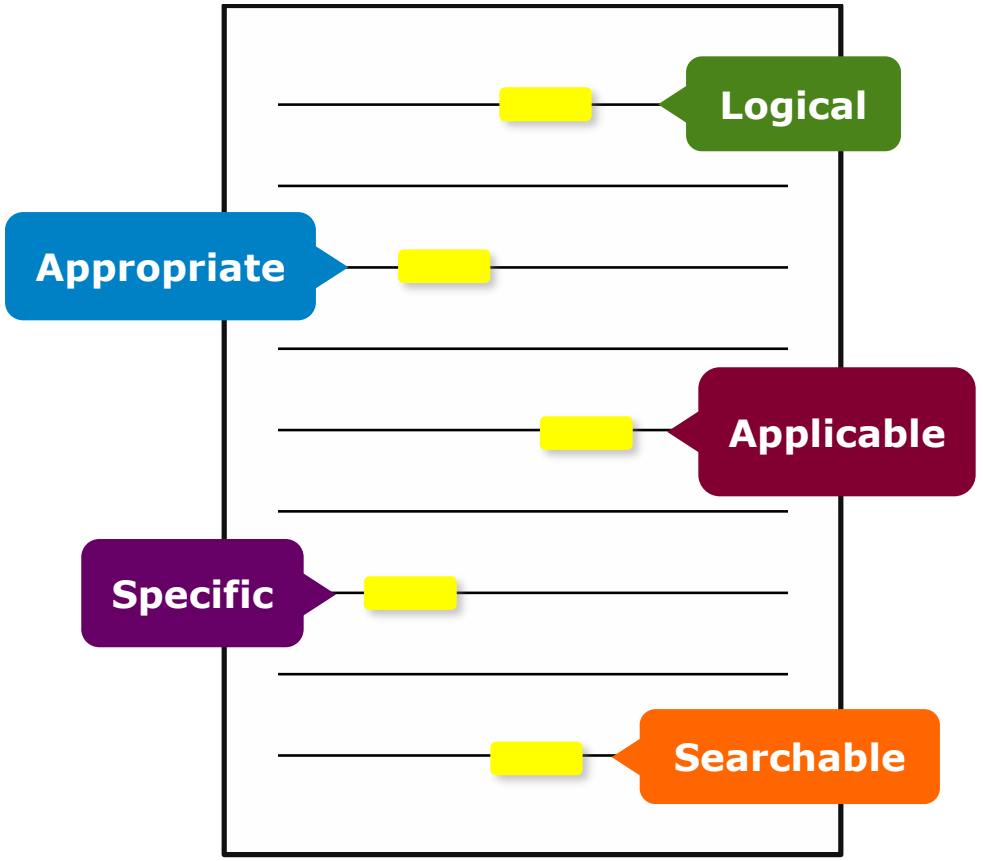

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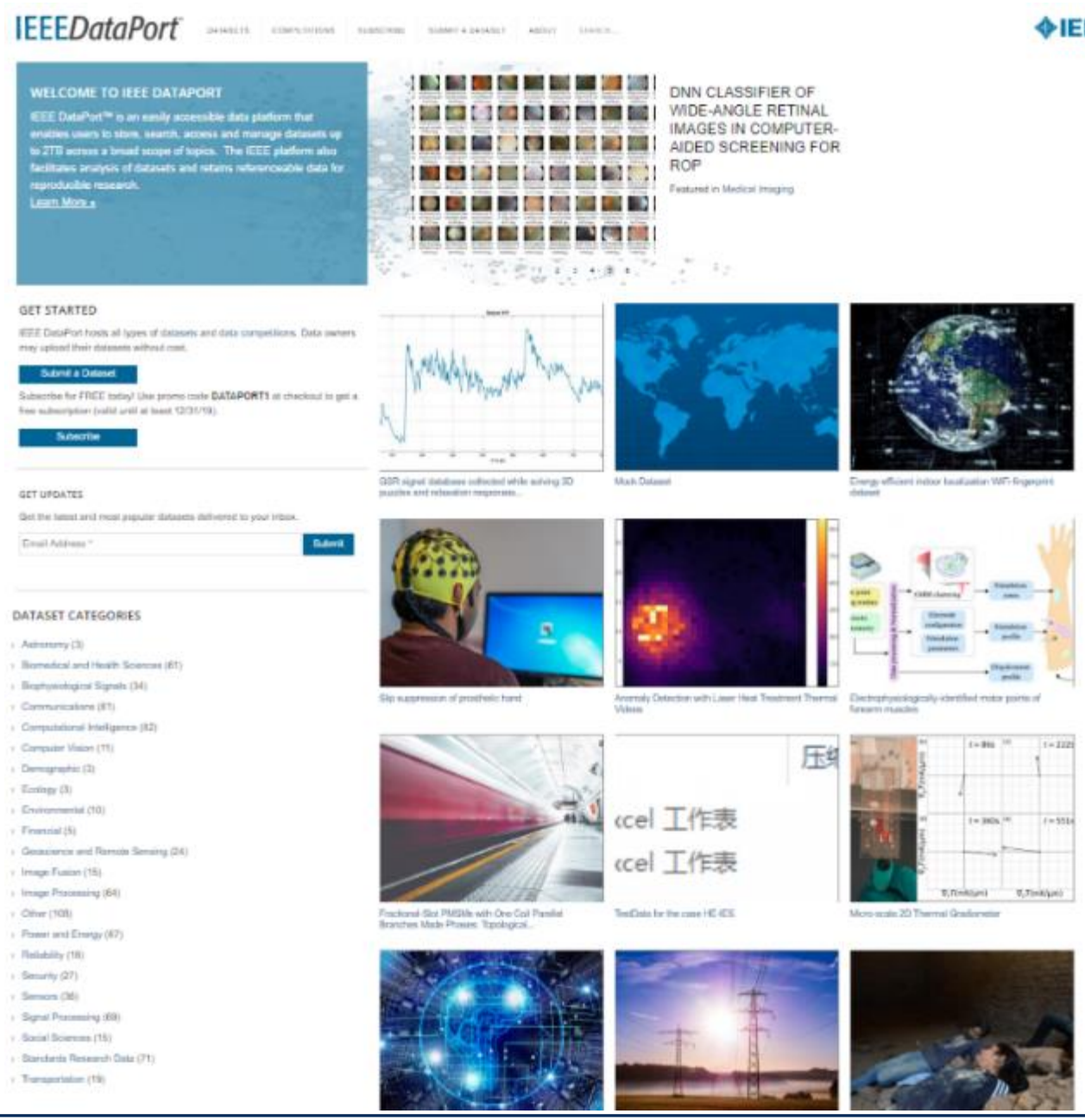

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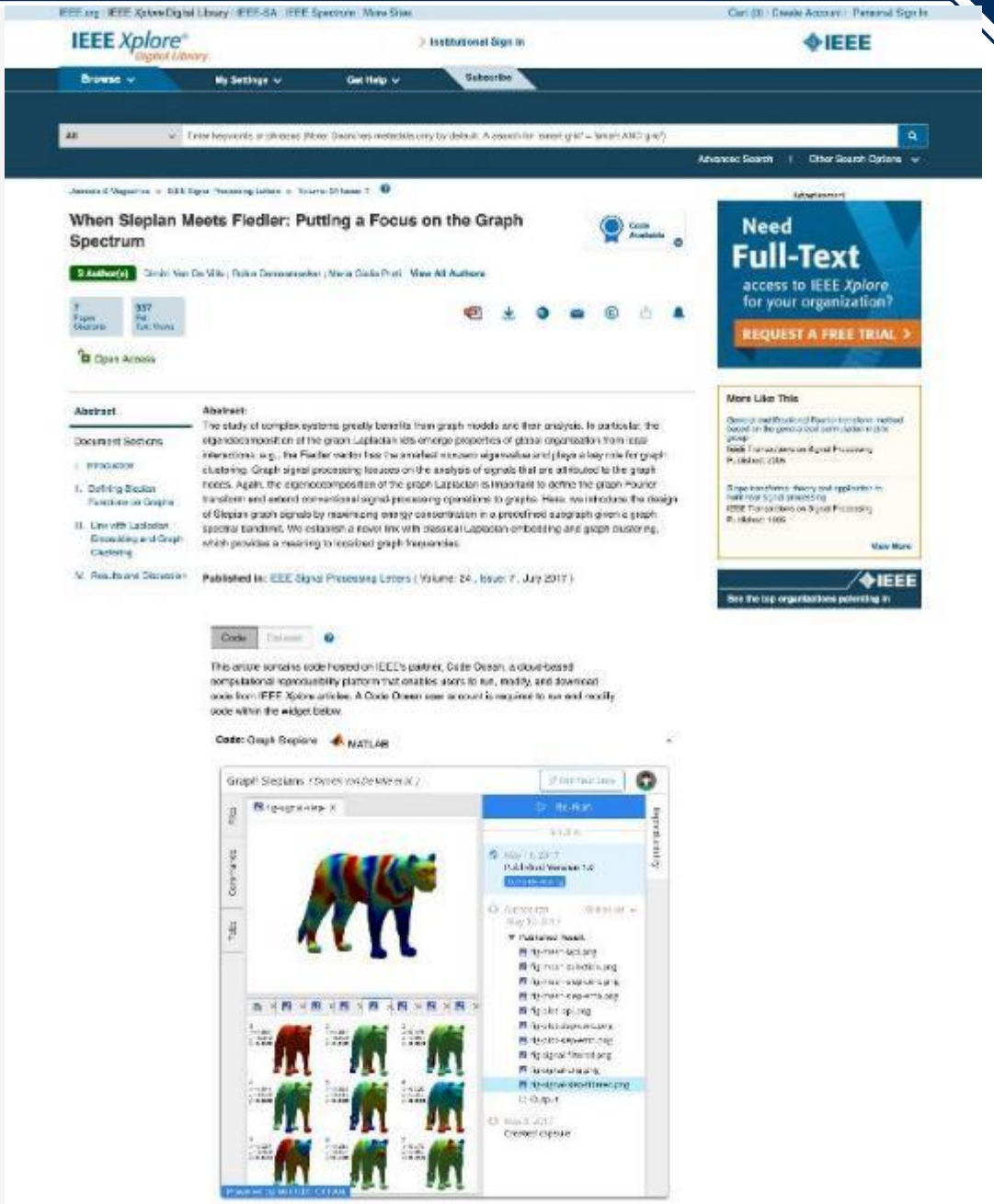

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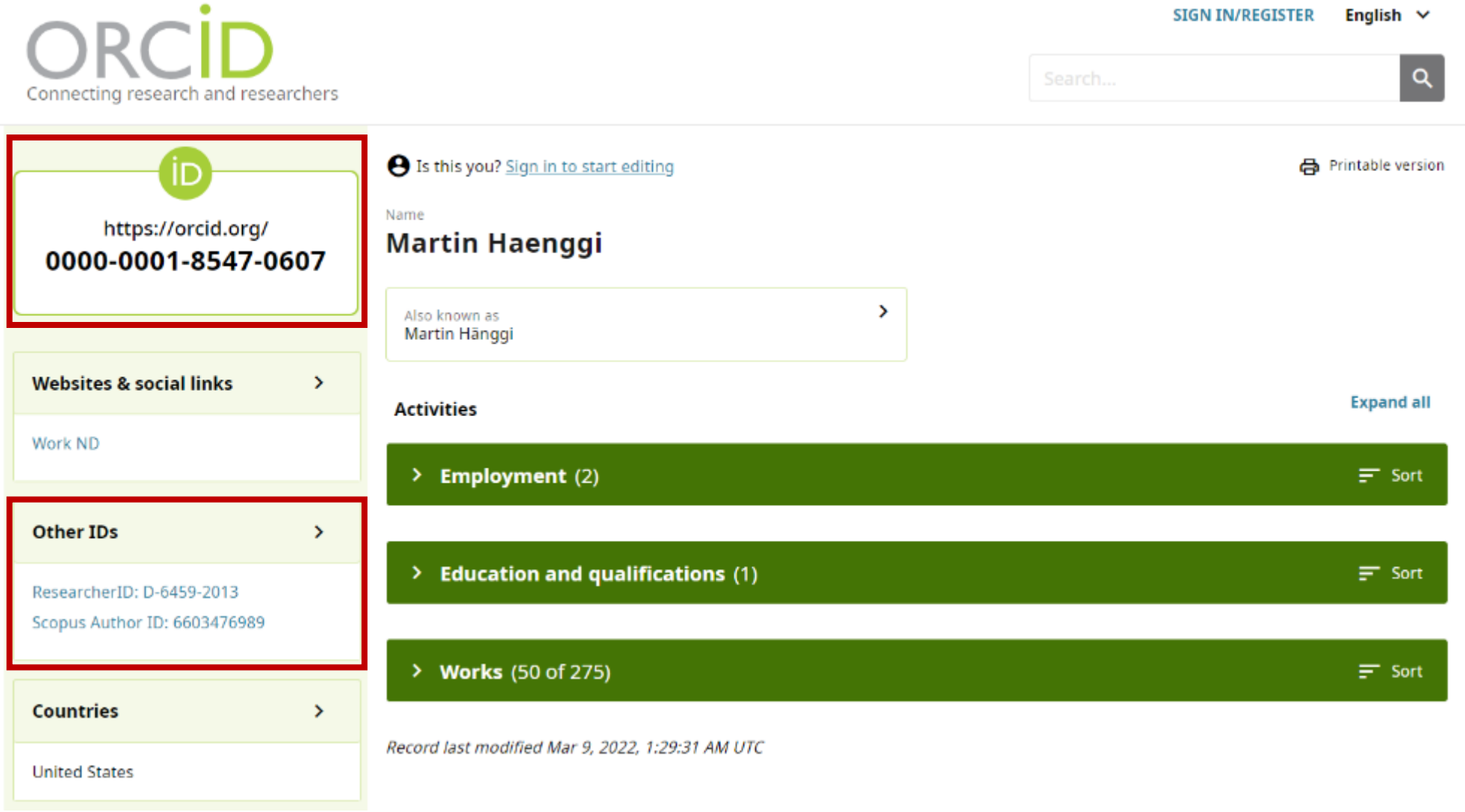

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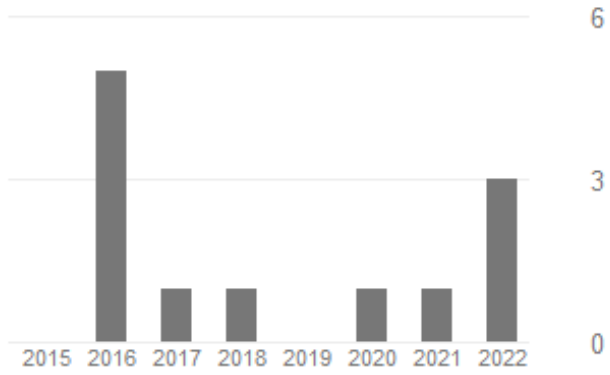

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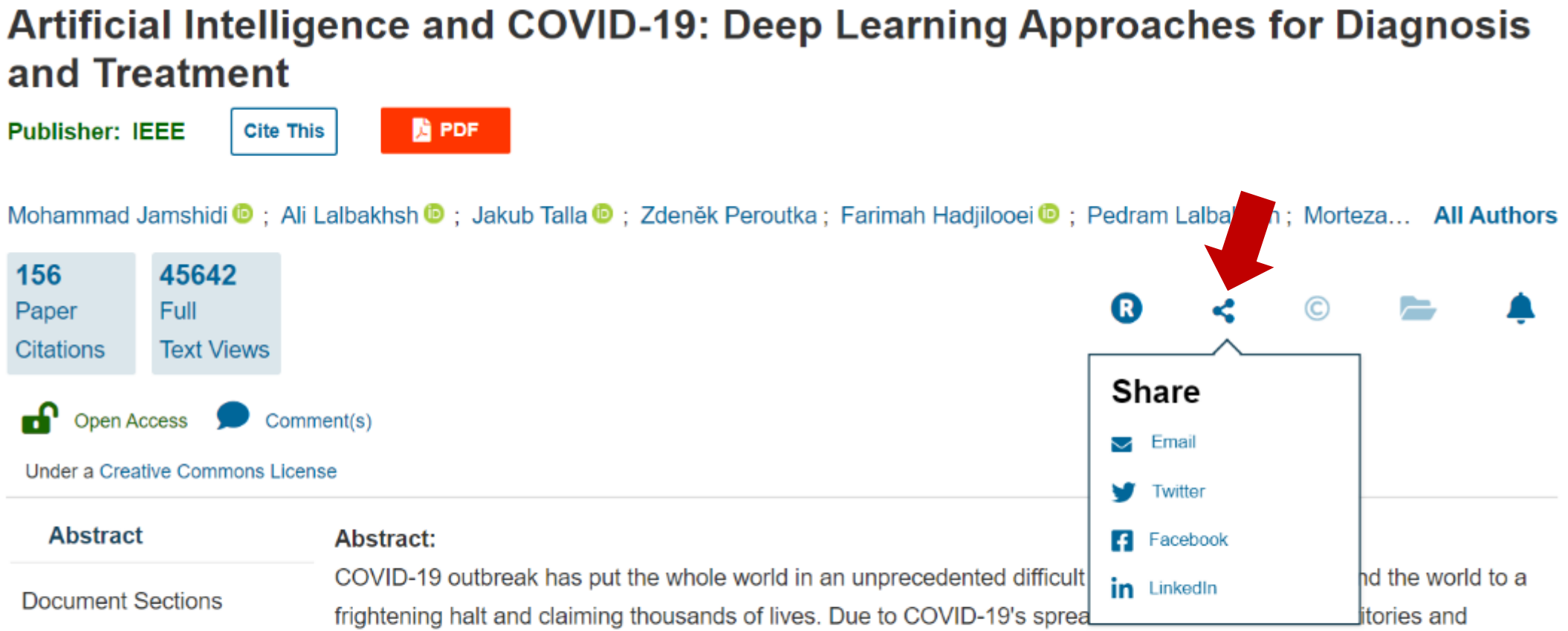

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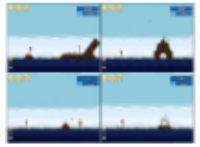

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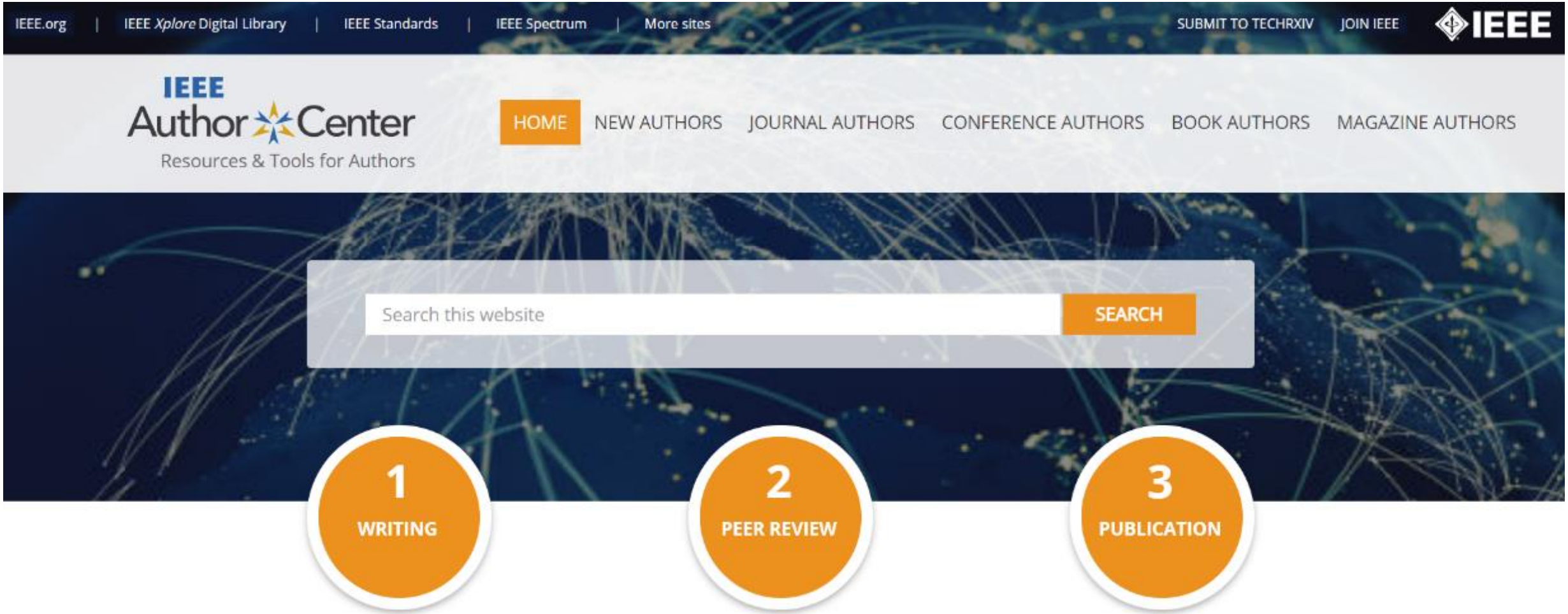

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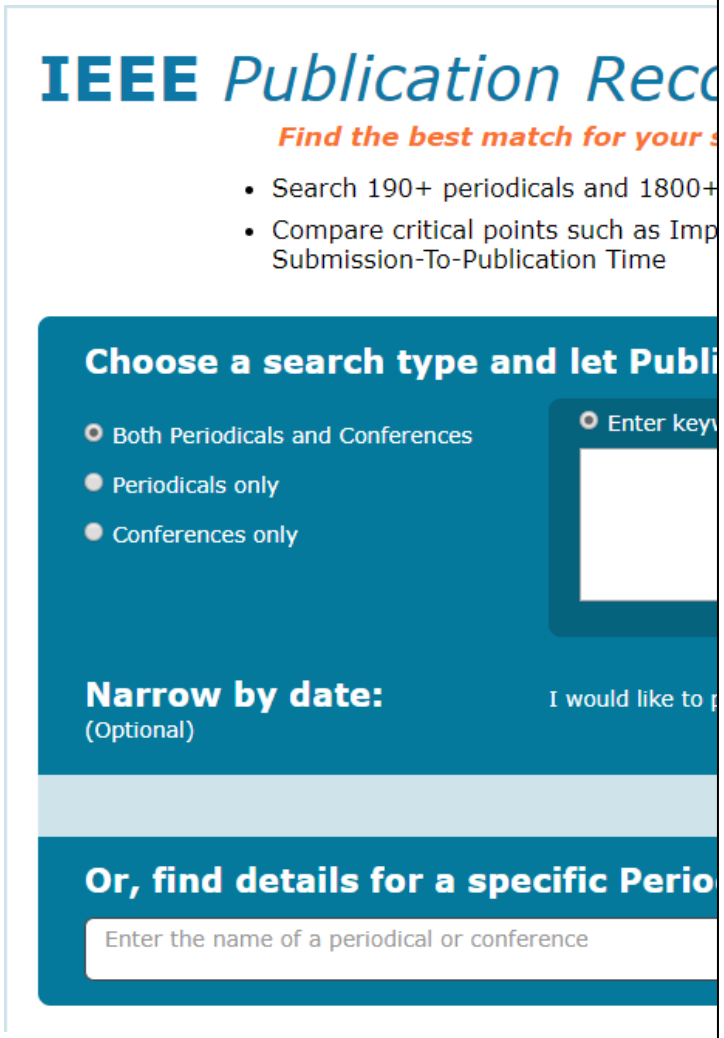

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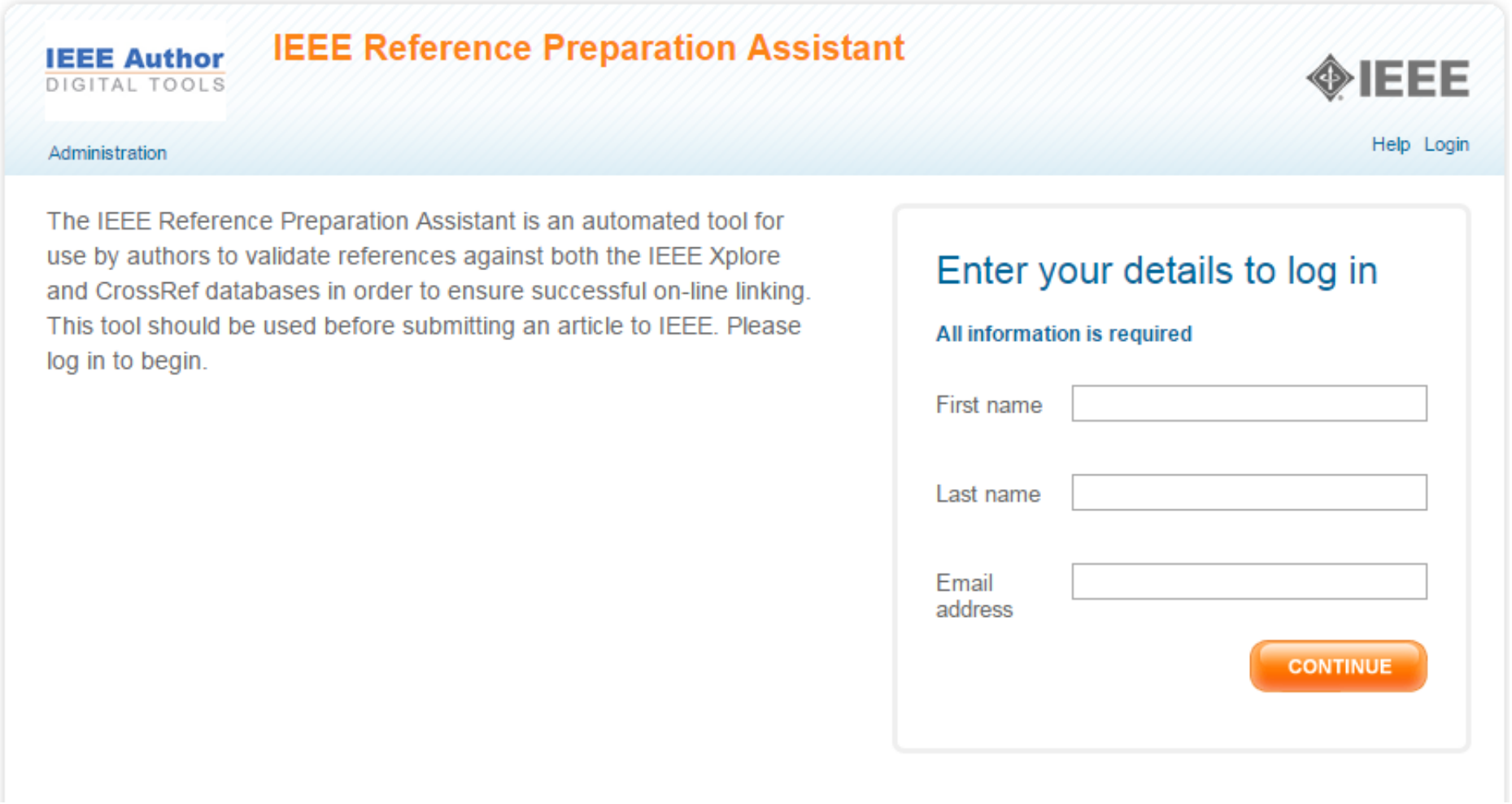

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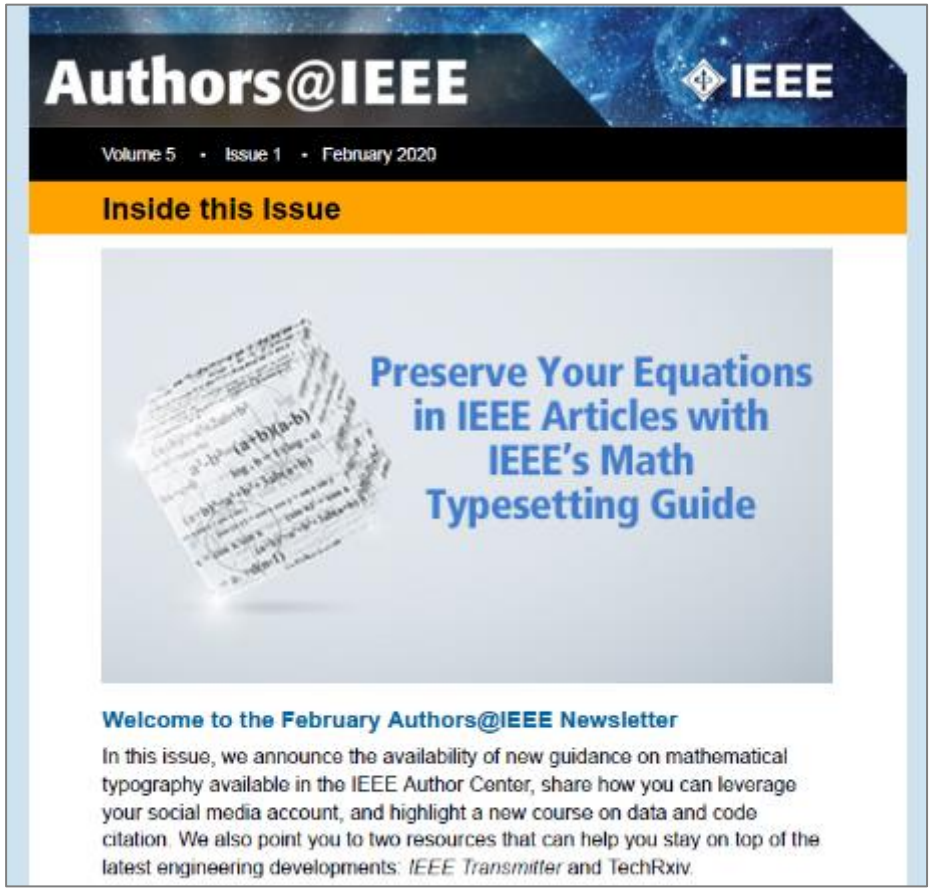

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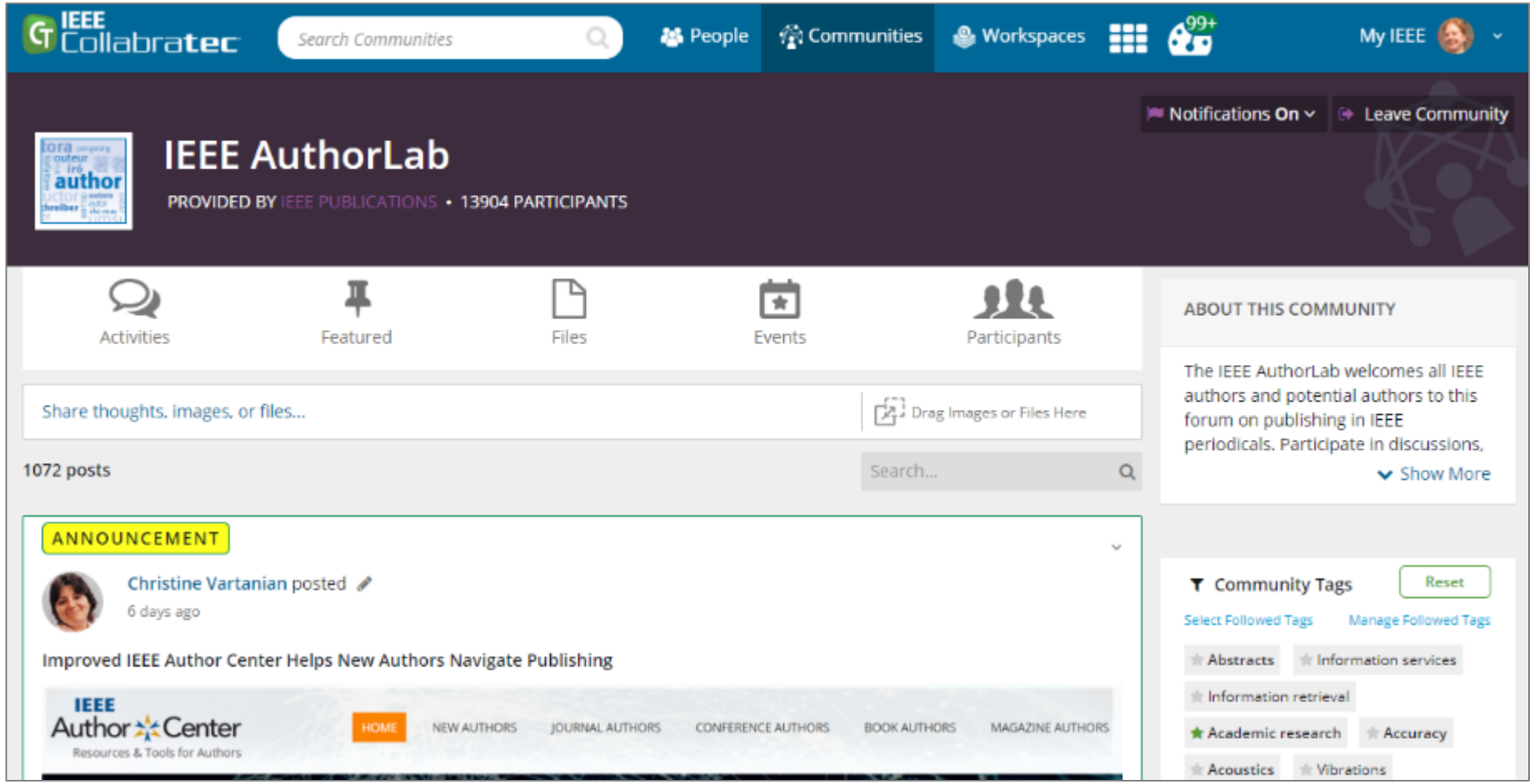

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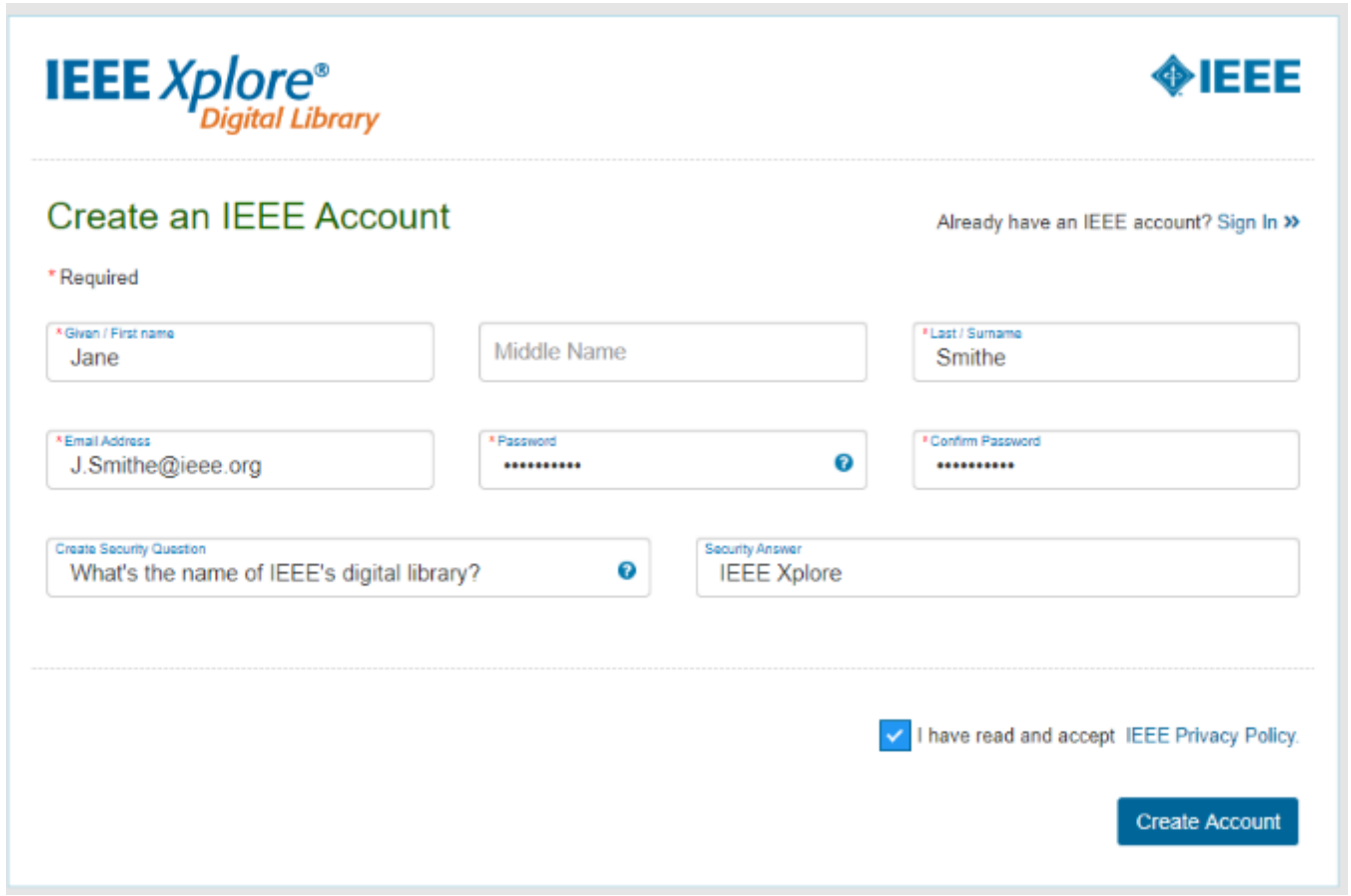

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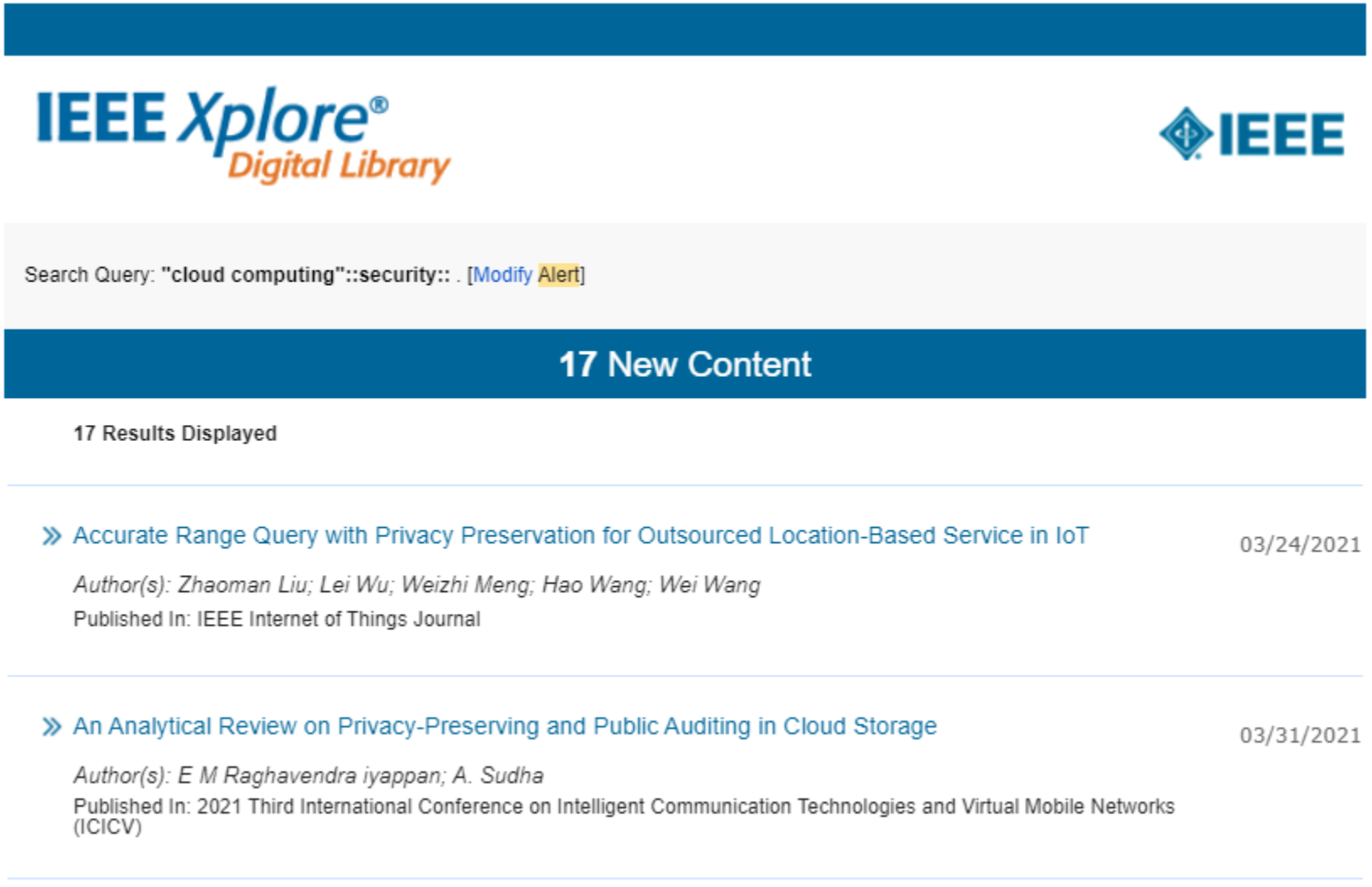

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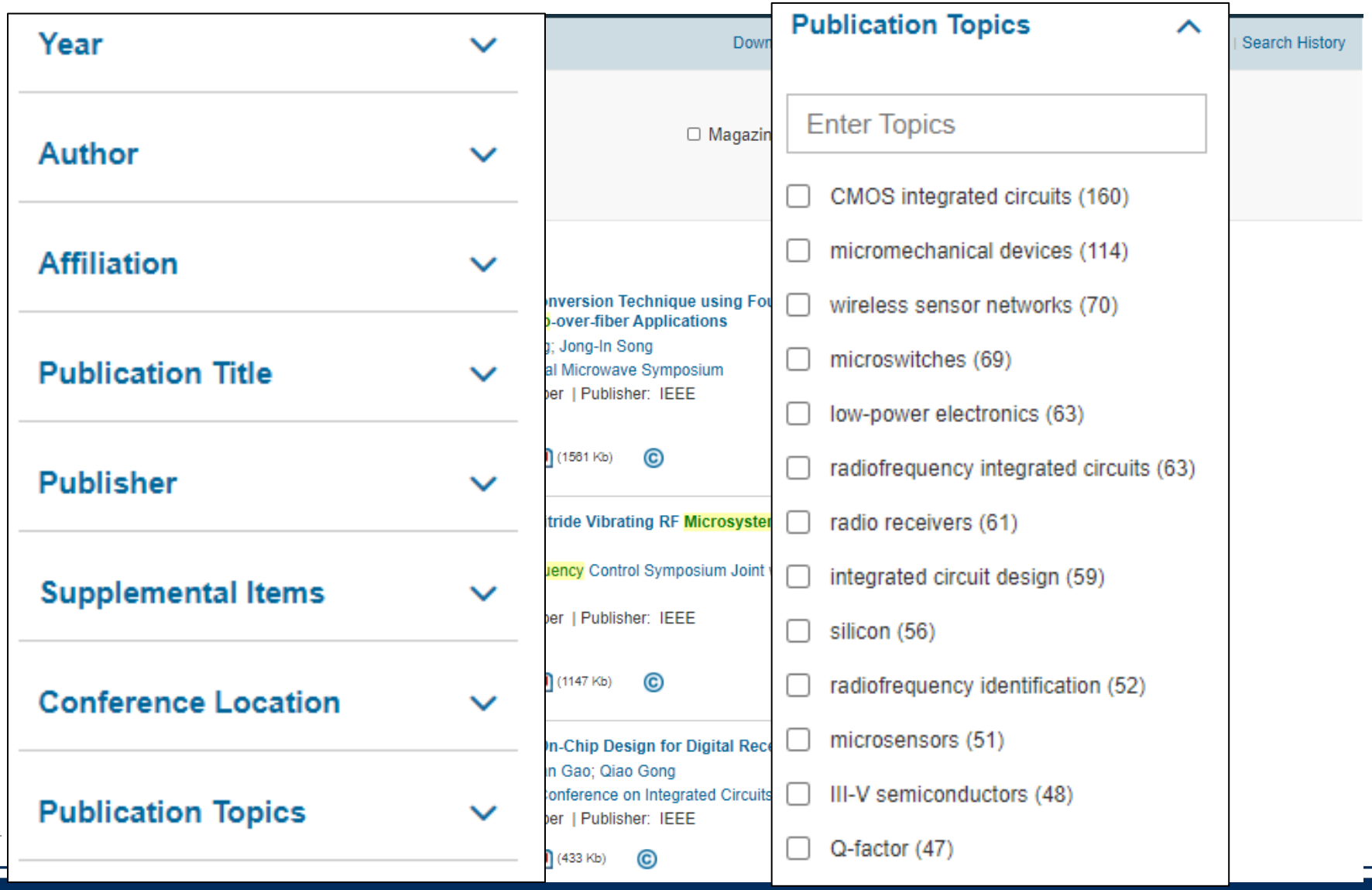

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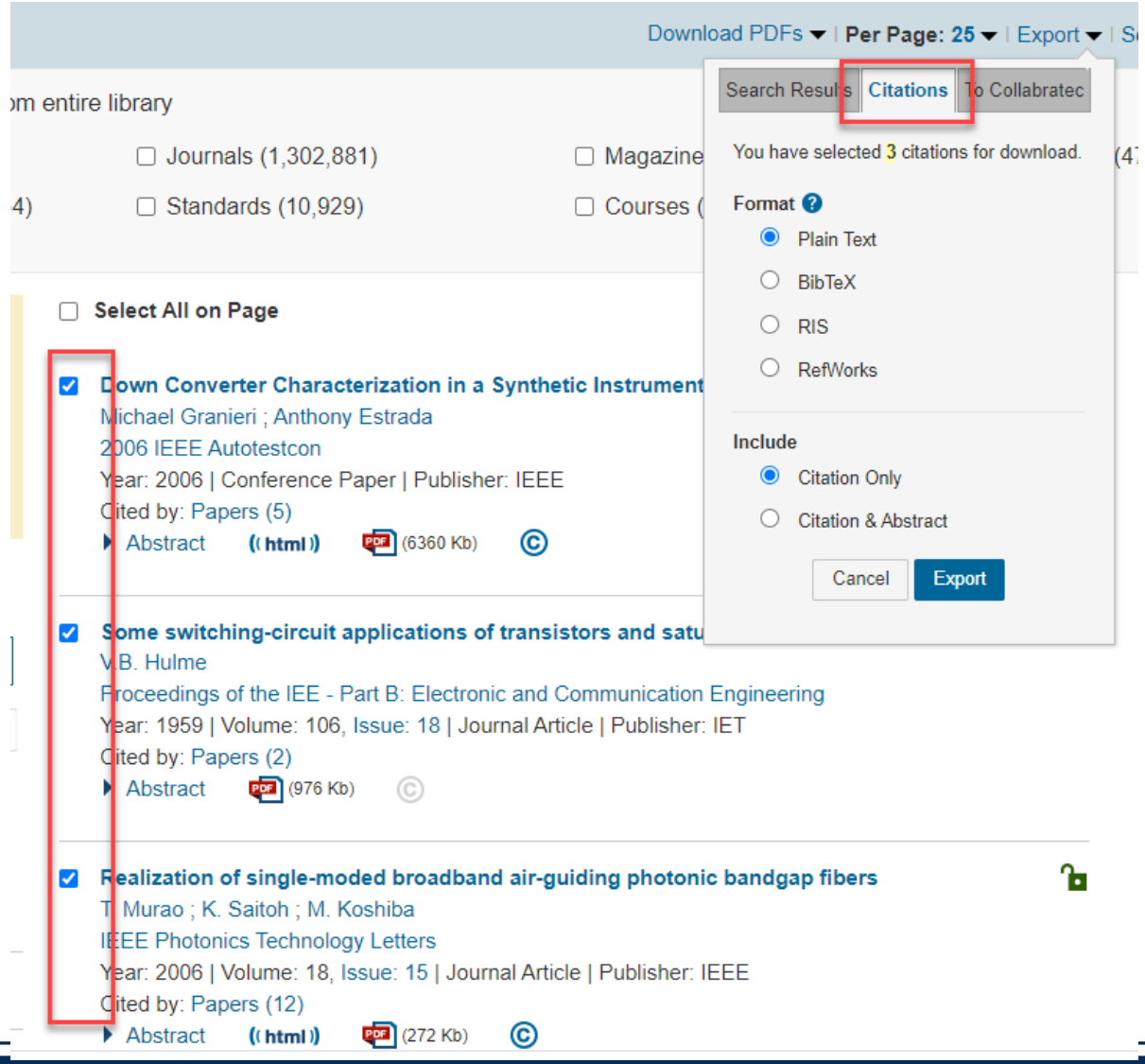

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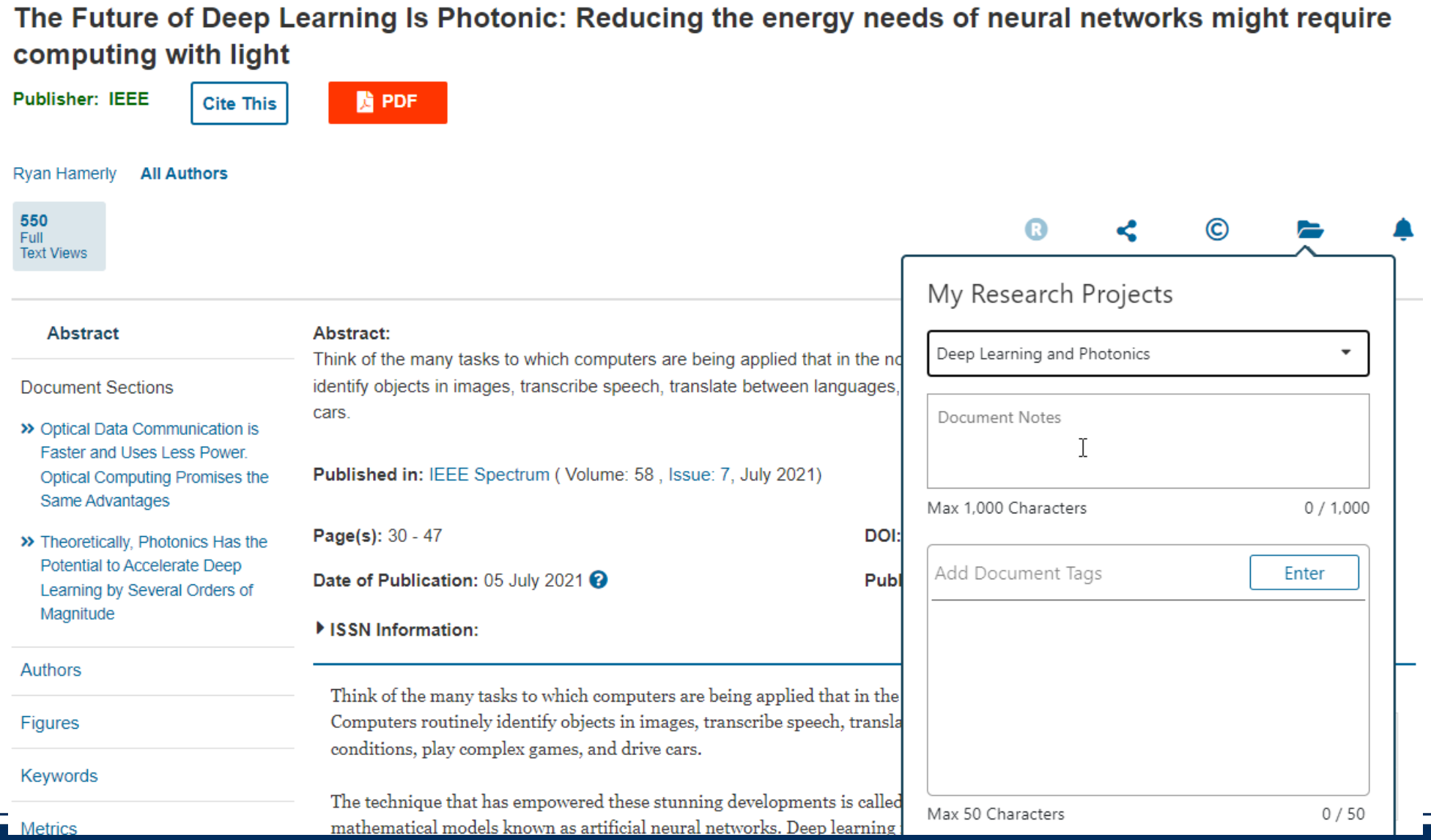

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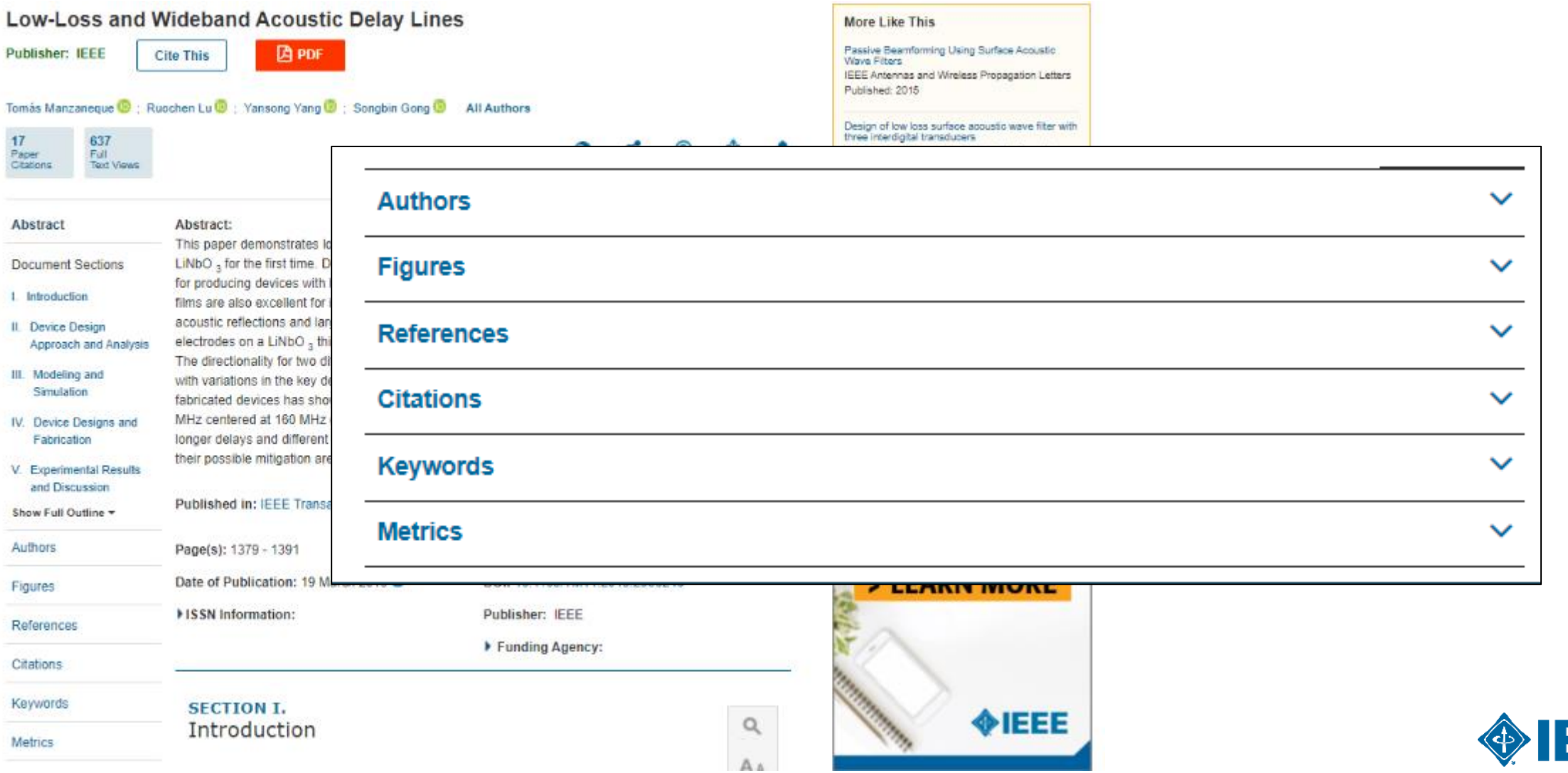

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Biography
Songbin Gong (Senior Member, IEEE) received the Ph.D. degree in electrical engineering from the University of Virginia, Charlottesville, VA, USA, in 2010.,He is currently an Associate Professor and the Intel Alumni Fellow with the Department of Electrical and Computer Engineering and the Micro and Nanotechnology Laboratory, University of Illinois at Urbana–Champaign, Urbana, IL, USA. His research primarily focuses on design and implementation of radio frequency microsystems, components, and subsystems for reconfigurable RF front ends. In addition, his research explores hybrid microsystems based on the integration of MEMS devices with photonics or circuits for signal processing and sensing.,Dr. Gong was a recipient of the 2014 Defense Advanc... Show More

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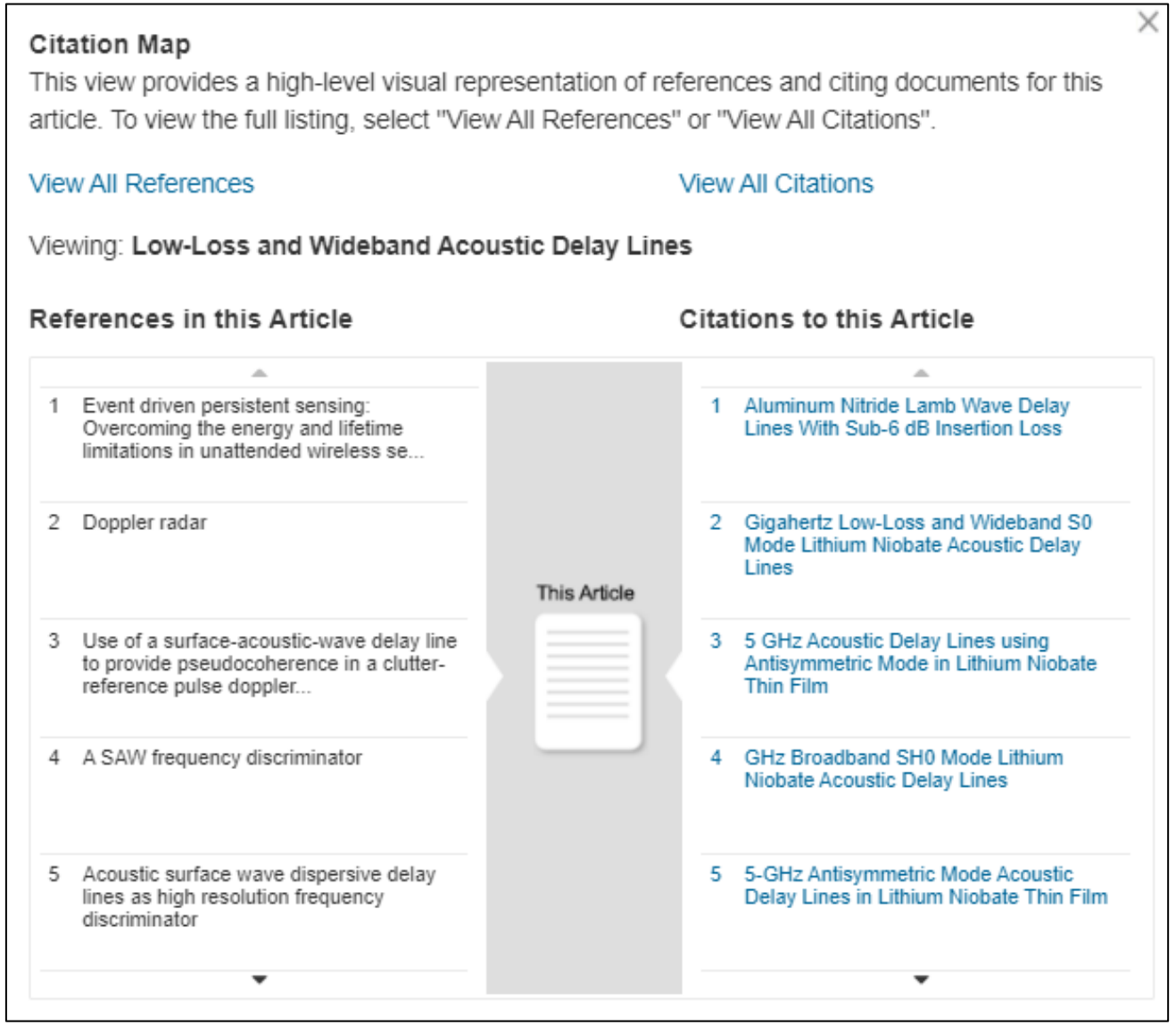

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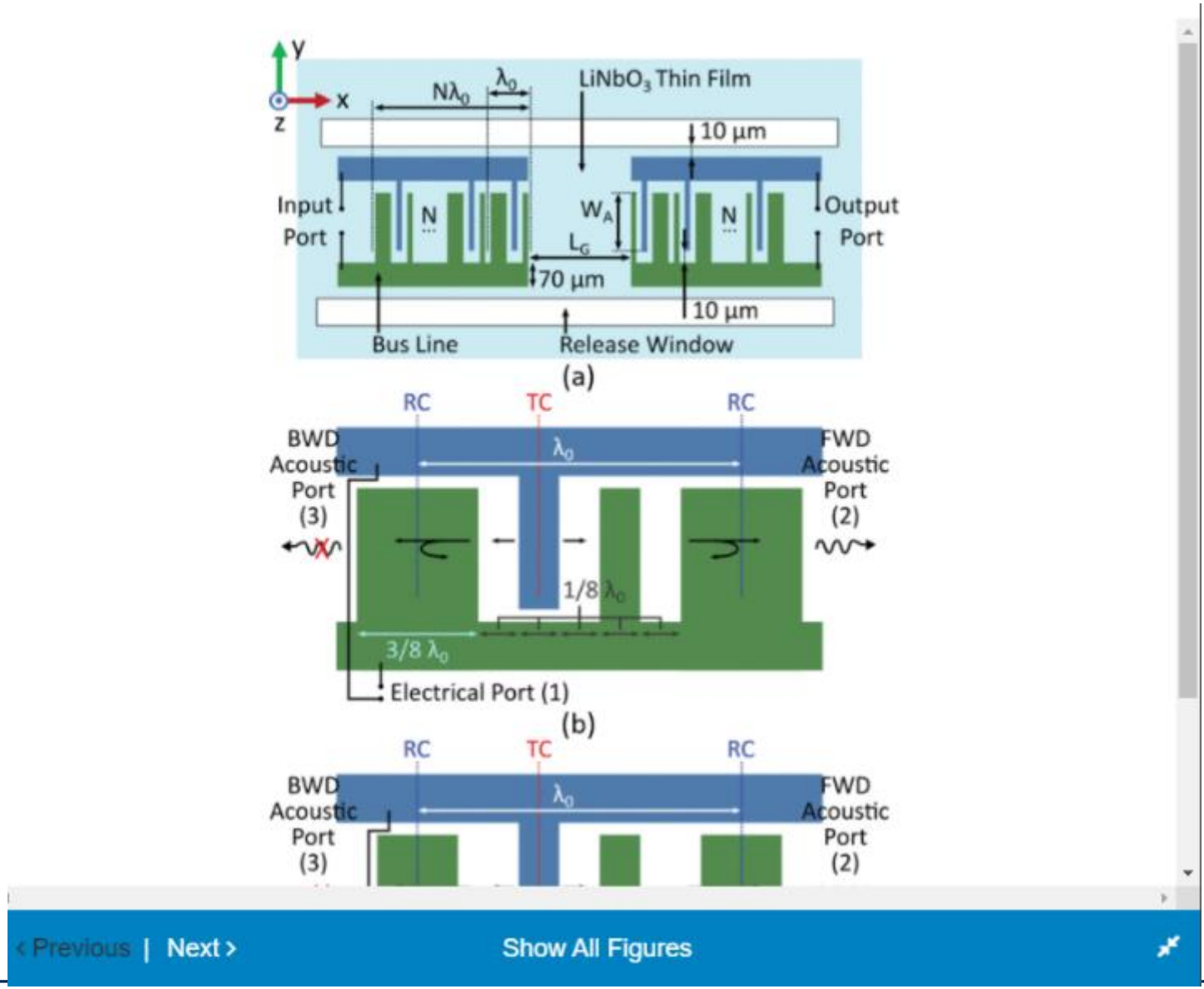

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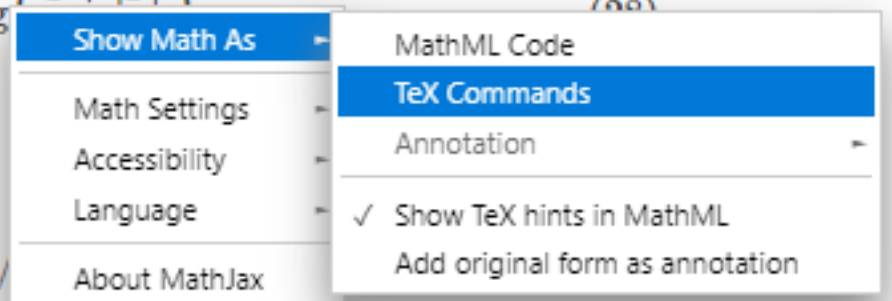
Modeling and Simulation

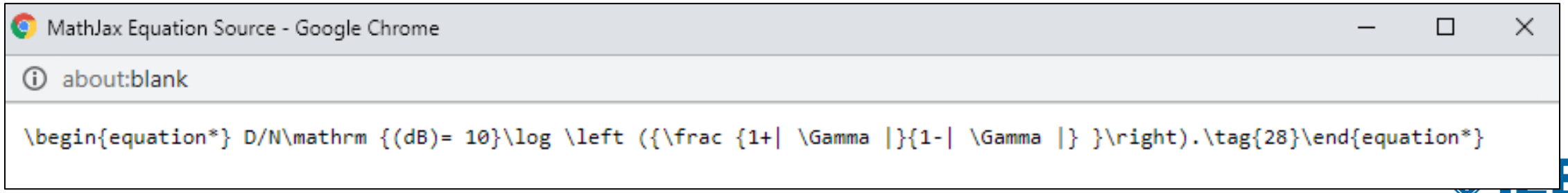
A Comsol-based FEM model of a unidirectional transducer was built to more precisely predict the directionality as a function of the number of unit cells. The directionality per unit cell was simulated for an EWC transducer formed by 100 nm of Au for di values of N. The results are shown in Fig. 7 (red curve). Theoretically, this va predicted from (23) as

$$D/N(\mathrm{dB}) = 10\log\left(\frac{1+|\Gamma|}{1-|\Gamma|}\right).$$

$D/N(\mathrm{dB}) = 10\log\left(1+|\Gamma|\right.$



(28), the simulated $D/$
xplained by the fringe
cer, which makes
dges present a smaller directionality than those cells located in



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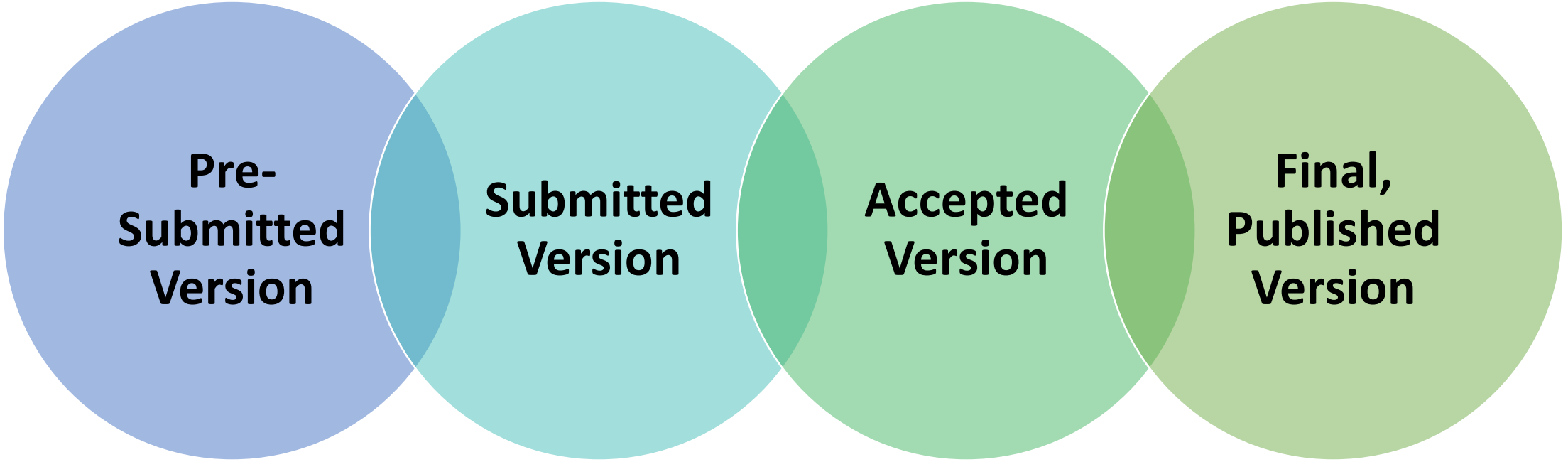

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