

How to Write an Impactful Paper

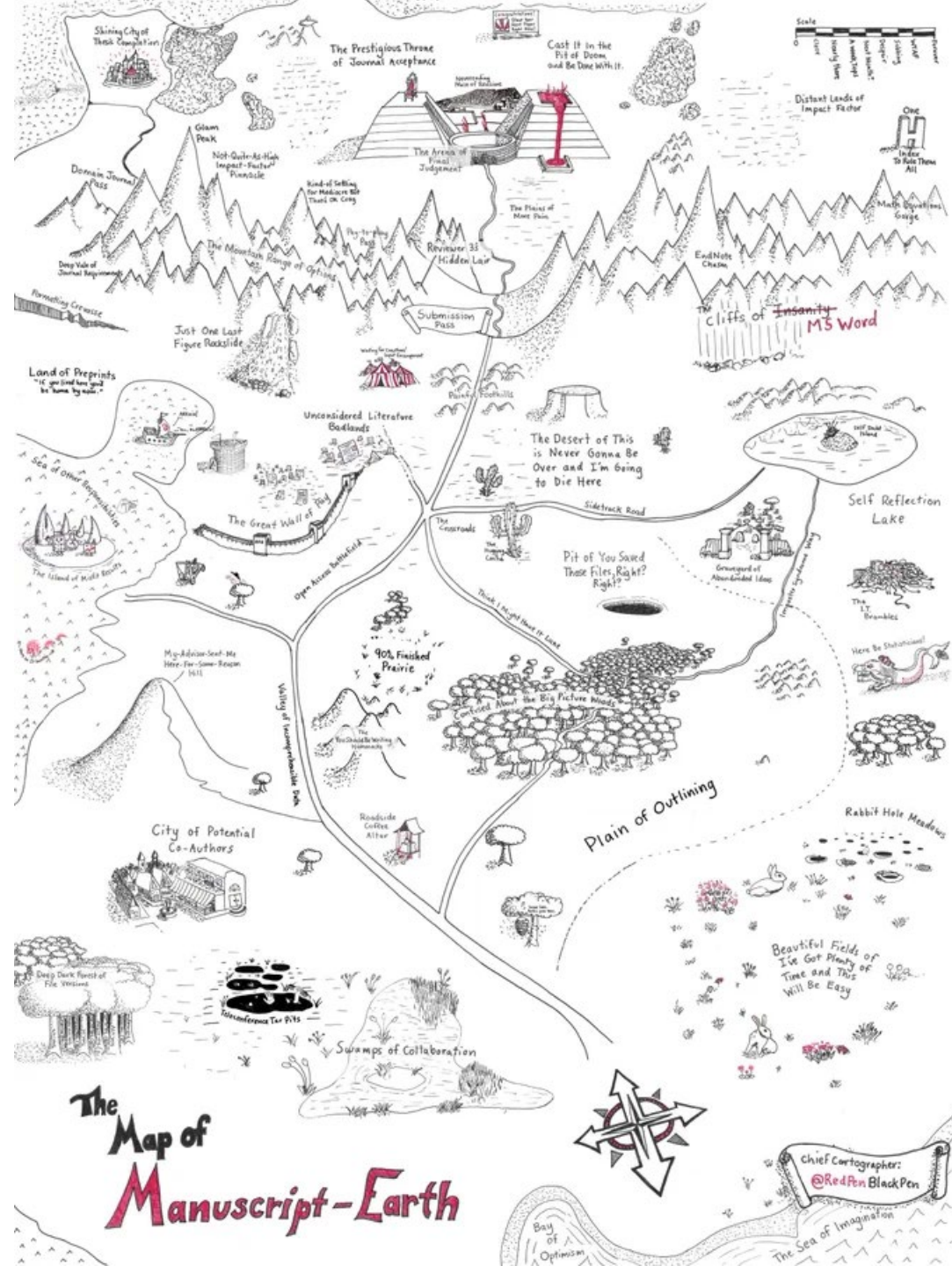
Professor Jonathan Reid

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Director of the EPSRC Centre for Doctoral Training in Aerosol Science

University of Bristol, UK

The Map of Manuscript Earth



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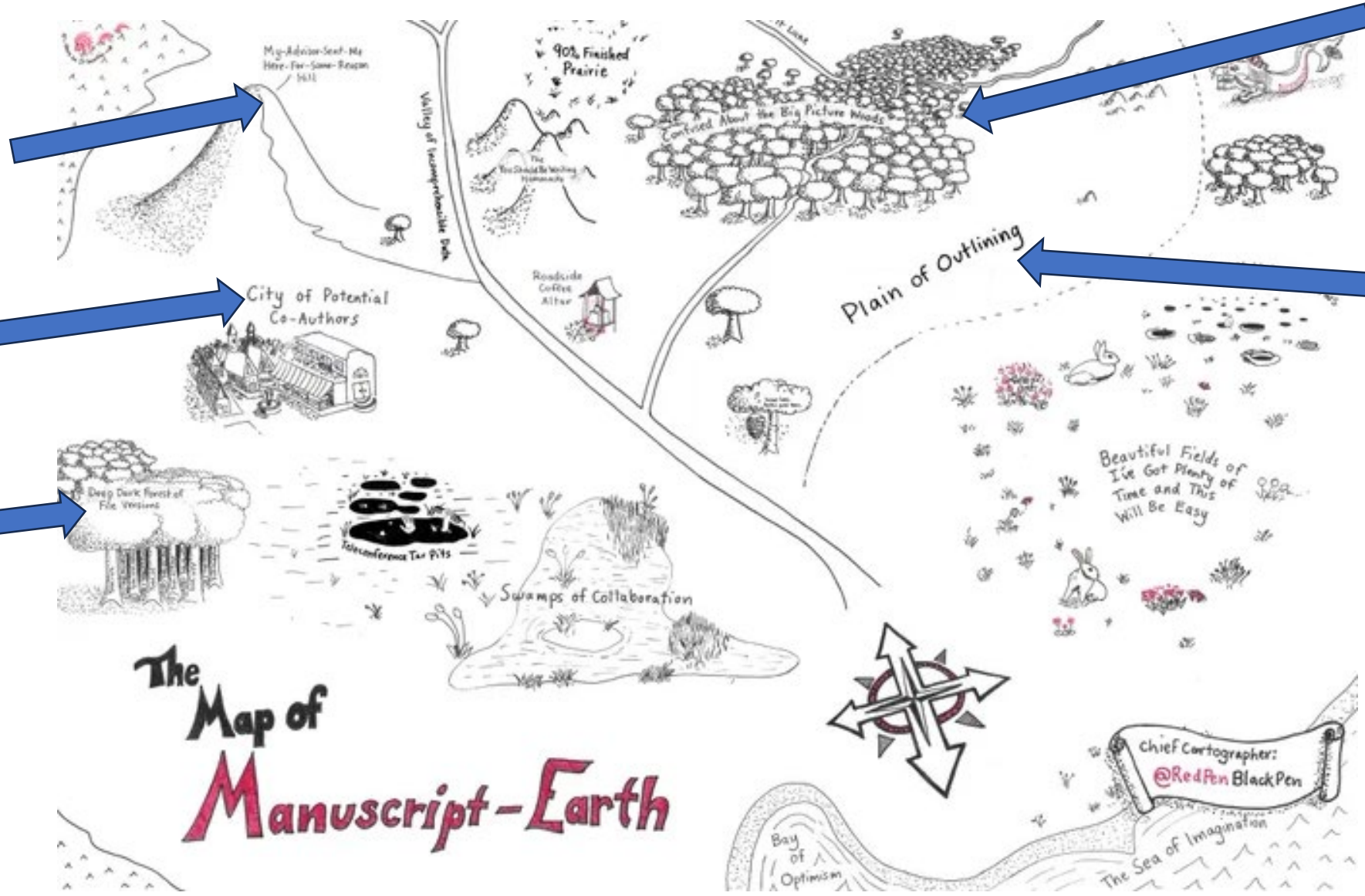
My supervisor sent me here for some reason

City of potential coauthors

Deep dark forest of file versions

Confused about the big picture woods

Plain of outlining



The Map of Manuscript Earth

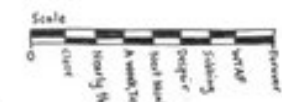
The prestigious throne of journal acceptance



The Prestigious Throne of Journal Acceptance

Cast it in the pit of doom and be done with it.

Cast It in the Pit of Doom and Be Done With It.



Distant lands of Impact factor



Distant Lands of Impact Factor

The mountain range of options



The Mountain Range of Options

Submission pass



Submission Pass

Land of preprints



Land of Preprints
"If you find here you'll be home by now."

The desert of this is never gonna be over and I'm going to die

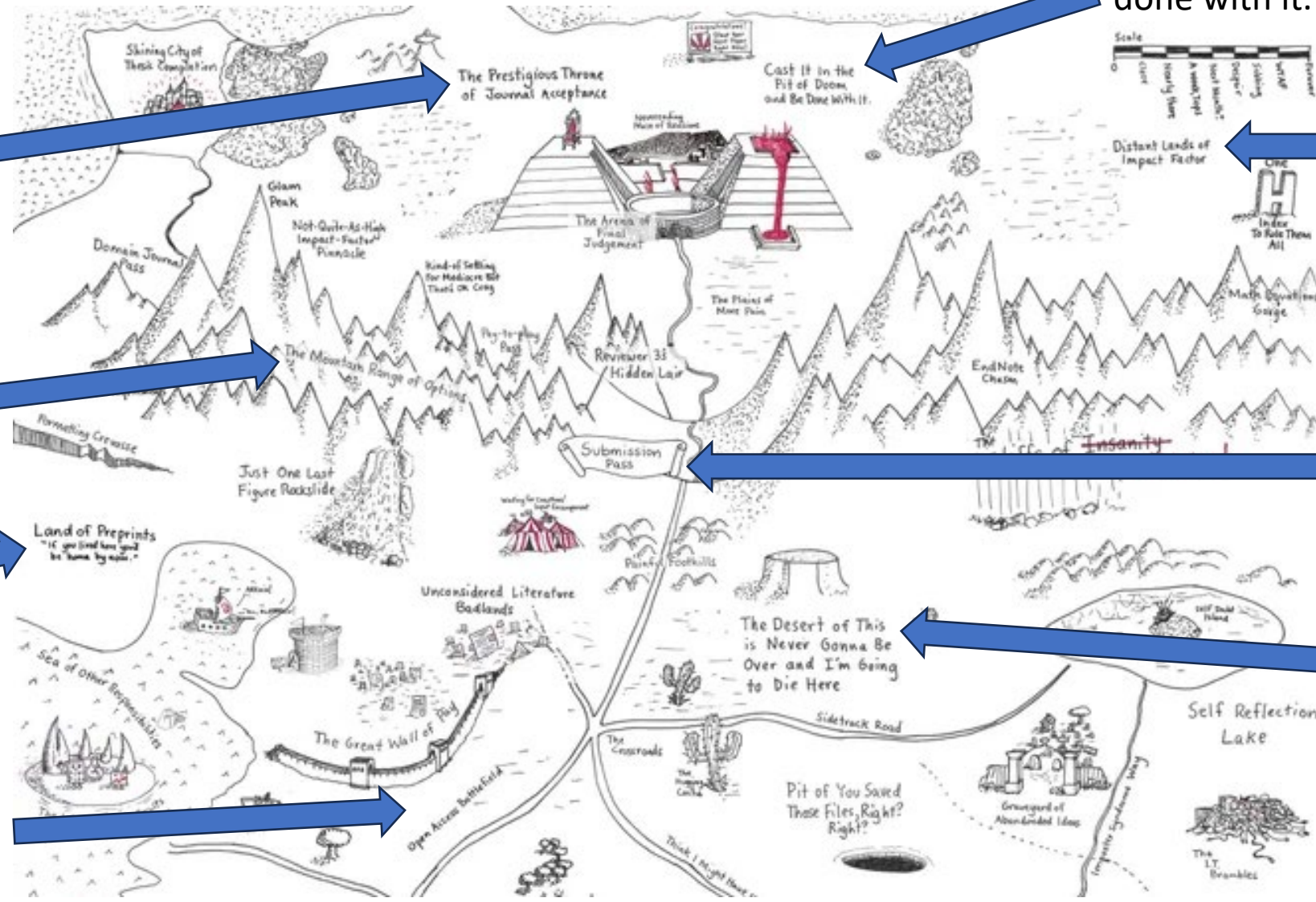


The Desert of This is Never Gonna Be Over and I'm Going to Die Here

Open access battlefield



Open Access Battlefield



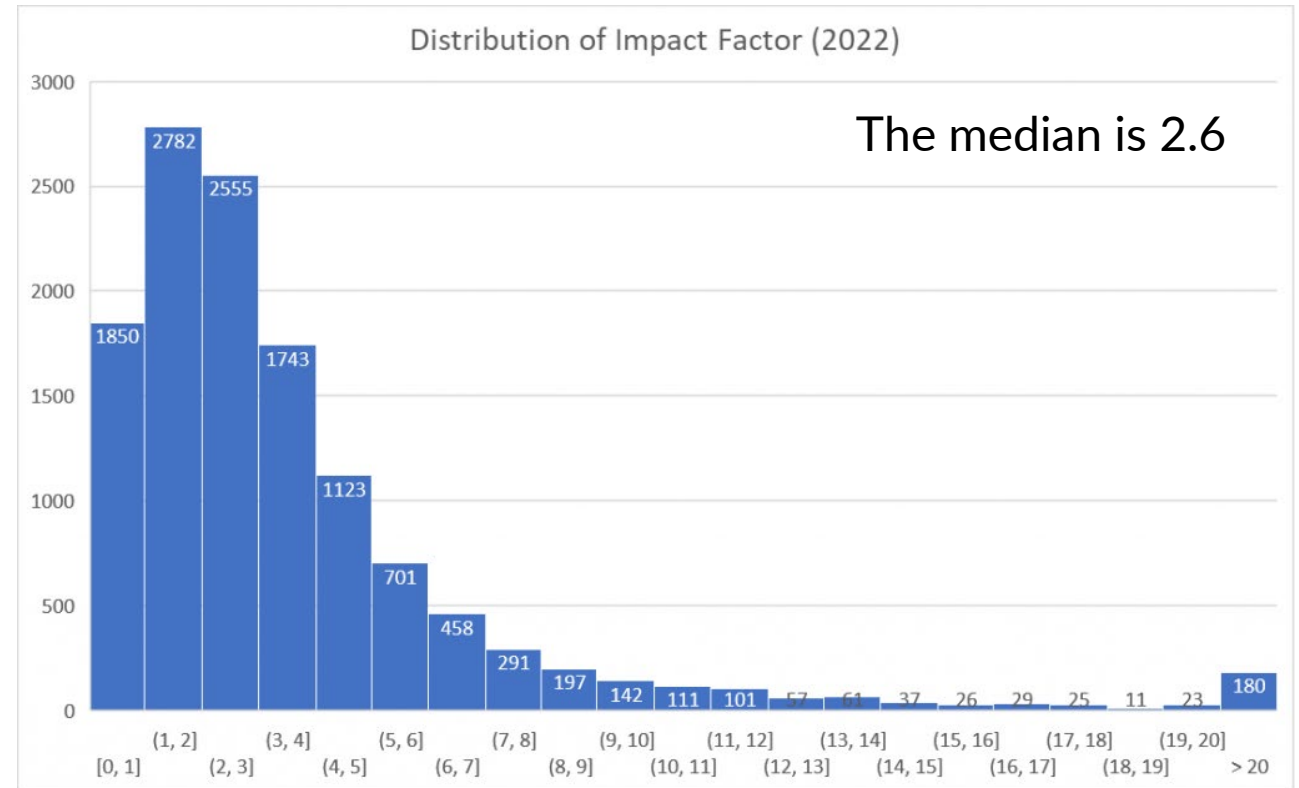
What is an impactful paper?



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- Publication in a **high-impact factor** journal.
- A publication that achieves a **high altimetric** and media (including social media) coverage.
- A publication that receives **a large number of views and citations**.
- A publication that **reaches the right audience** and makes an **impact on the research of others** in your field
- Presentation of your work in a **talk or poster** at a conference.



<https://www.biz-genius.com/journal-impact-factor-trend-and-distribution/>



How to write an impactful paper: Before you start



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- The **objective of research** is to formulate and test hypotheses, to draw conclusions from the tests you do, and to then communicate these conclusions to the community. The **aim is not to just collect data**.
- Writing the paper should be viewed as an **integral part of the research activity** - it is the prime way that new research extends knowledge and **can be a formative process in completing your research**. Do not wait until your research is complete to start writing the paper.
- Working on a paper in parallel to undertaking your research will **help you organise your thinking**, reformulate your hypotheses, etc. and **will be more efficient** than just organising your data and writing your paper when the data collection is finished.
- However, remember that **no paper is ever perfect**, it will never be entirely self-contained and finished!
- A **well-composed paper** goes a long way to ensure your paper receives the attention of readers and becomes impactful.

How to write an impactful paper: During your writing



- Create an **outline of your manuscript** before you start writing. Collect together the **key figures** you will use. See how the scientific story/narrative emerges. **Ask yourself: “What are the major advances?”**
- **Select the journal.** What audience do you want to reach? This will have a big impact on how you write.
- **Get the title right!** Does it appeal to a broad readership? Does it reflect the content of the paper accurately?
- **The abstract:** A couple sentences that highlight the significant advances should be made the focus. The abstract should conclude with a sentence that describes the broader implications of the work.
- **Well-drawn figures** are crucial to presenting the scientific narrative. Get the font size right. Care over figure production suggests care over the science. Aesthetically pleasing figures help.
- **Use short sentences** rather than long complex ones – avoid baffling the reader.
- **The introduction:** Does the author fully understand the significance of their work? How does it support/challenge the current knowledge base? End by presenting the motivation for the study.
- **Personal pronouns** and **active voice** can be used to create a more personal and engaging narrative.

How to write an impactful paper: Before you submit and after review



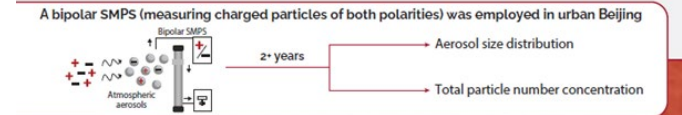
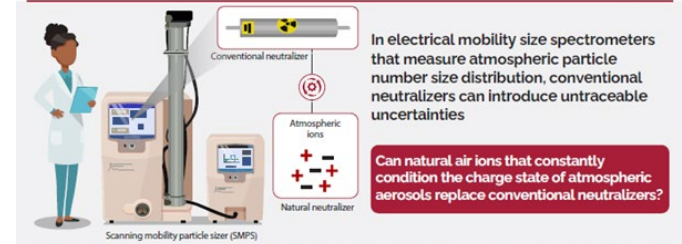
- Proofread!
- All collaborators should review the manuscript.
- Care and attention to detail can make a paper more readable and impactful.
- Meet the submission criteria of the journal – if you don't, your manuscript may be rejected.
- “Should I preprint it?”

When you receive the reviews:

- Treat them like gold-dust! No matter how critical they may be. Peer review is extremely beneficial – others have assessed your work, come “cold” to your paper and read the narrative. Their comments will be crucial to you making your paper impactful.
- Carefully respond to the reviewers point by point and consider what change you can make.

How can you increase the impact?

- Use **Table of Contents graphics** to increase reach.
- Write a **press release** for your institution's press office to publish.
- Use **social media** to promote your publication (e.g. retweet journal posts, post on LinkedIn).
- **Talk** about your work at a conference.
- Use **additional media such as infographics** to provide digestible summaries of your work that reach a wider audience.



Bipolar SMPS was analogous to conventional methods, showing:

- Aerosol size distribution comparable to that by conventional SMPS
- Good agreement to total particle number concentration measured via condensation particle counter
- Stable properties of ions, compared to the drifting values noted by conventional neutralizers

Atmosphere was found to be a natural neutralizer:

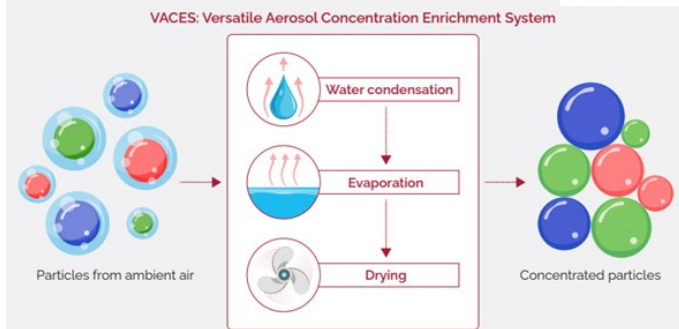
- Helps make uncertainties traceable
- Enables the construction of miniature spectrometers for:

- Airborne measurements
- Exposure monitoring
- Sensor network

Natural air ions can successfully replace conventional neutralizers in electrical mobility size spectrometers

Concentrating Organic Aerosol Particles with VACES

Studies exploring the health effects of atmospheric particles often use particle concentrators, but does the concentration process change or affect particles themselves?



VACES showed evidence of oligomerization of organic aerosol particles during drying

Water uptake, evaporation, and drying can change the properties of organic aerosol particles during the concentration process

Research Infographic

Headline Infographic

How can you increase the impact?



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Engage and retain
members



Reach broad
global audiences



Bridge academic/
practitioner gap



Foster diversity
and inclusion

Articles published with an alternative format
receive:

3x higher **readership**
(full-text downloads)

6x higher **engagement**
(Altmetric score)

2x higher **impact**
(citations)

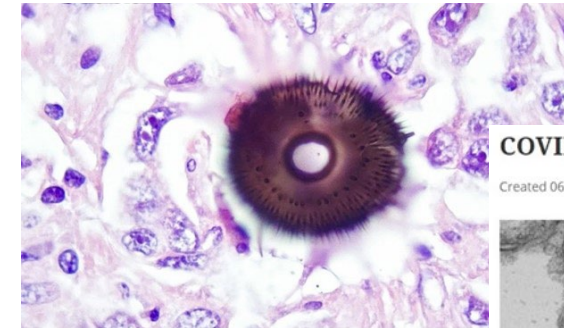
Why submit to AS&T

- AS&T is the **journal of the American Association for Aerosol Research**. The association owns the copyright rather than the publisher (Taylor and Francis).
- The journal metrics are strong with an **impact factor of 5.2** (2022) and a **cite score of 7.2** (2022).
- The journal has a **diverse editorial board** covering the breadth of aerosol science.
- **Publication times are rapid** with an average of 29 days until first decision and 21 days from acceptance to online publication.
- AS&T uses **additional media such as infographics** to provide digestible summaries that reach a wider audience.
- Articles are **promoted through the AAAR and AS&T** social media and networks.



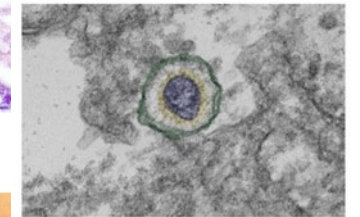
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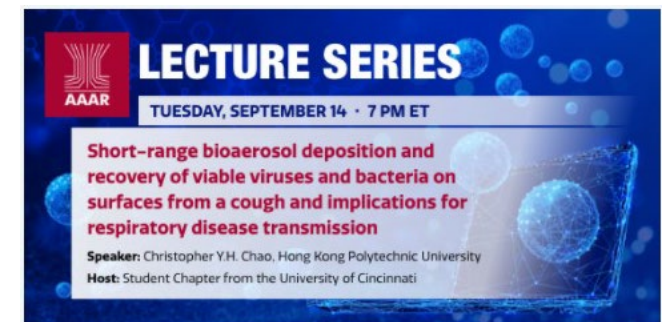


COVID-19 and Aerosols

Created 06 Jul 2021 | Last updated 14 Jul 2021 | Collect



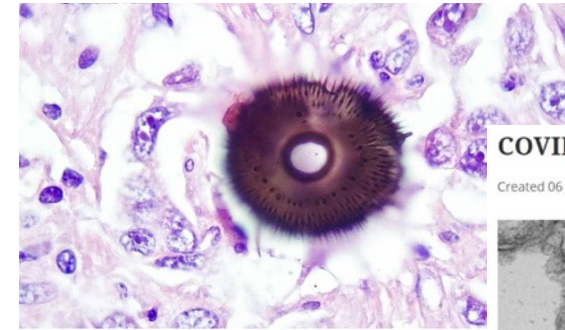
The collection image shows a transmission electron micrograph (green). Magnification: 260,000X. Image courtesy of DHS S&T.





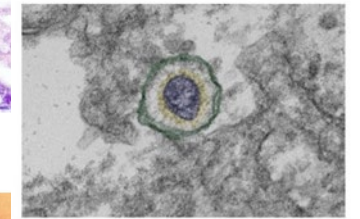
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Any Questions?

Aerosol Science
@ASTJournal

AS&T is AAAR's official journal @AmericanAerosol and is a top tier journal dedicated to publishing the latest advances in aerosol science and technology.

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AAAR LECTURE SERIES
TUESDAY, SEPTEMBER 14 • 7 PM ET

Short-range bioaerosol deposition and recovery of viable viruses and bacteria on surfaces from a cough and implications for respiratory disease transmission

Speaker: Christopher Y.H. Chao, Hong Kong Polytechnic University
Host: Student Chapter from the University of Cincinnati