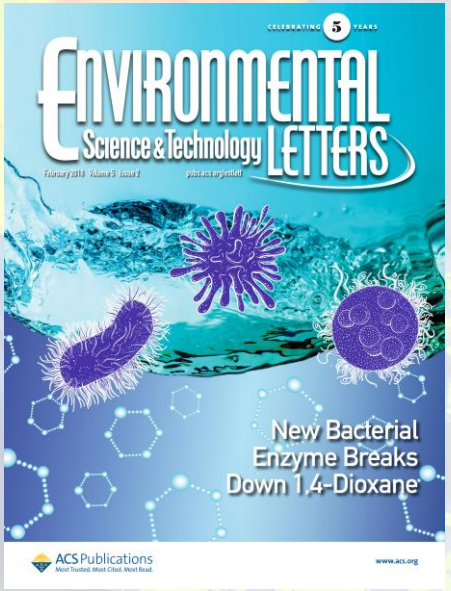
Why was my manuscript rejected without review? Focusing on Manuscript Preparation for ES&T

Daniel Schlenk
Executive/Associate Editor,
ES&T and ES&T Letters



About Me

Daniel Schlenk

http://envisci.ucr.edu/faculty/schlenk.html

- Native of San Diego, California
- Professor Aquatic Ecotoxicology; University of California, Riverside
  - PhD Biochemical Toxicology Oregon State University
  - Postdoc Duke University
  - Former EiC *Aquatic Toxicology (2000-2011)*
  - EAB *Marine Environmental Research; Aquatic Toxicology; Environment and Health*
  - EE/AE *ES&T*; AE *ES&T Letters (2017-Present)*
- Research
  - Mechanistic Impacts of legacy and emerging contaminants on aquatic organisms
    - Climate Change/Pesticides and Neuroendocrine Disruption
    - Biotransformation and Evolutionary Susceptibility to Natural and Man-made Chemicals
    - Effects of Emerging contaminants and Plastic additives on Endocrine Responses

Outline

- Overview of ES&T Publications and Process
- Suggestions for better submission
- Figures and Graphics

Subject Areas In Scope

- Biogeochemical Cycling
- Bioremediation and Biotechnology
- Data Science
- Ecotoxicology and Public Health
- Energy and Climate
- Occurrence, Fate, and Transport of Aquatic and Terrestrial Contaminants
- Occurrence, Fate, and Behavior of Contaminants in Indoor Air and Atmosphere
- Physico-Chemical Treatment and Resource Recovery
- Sustainable Systems

ES&T Manuscript Types

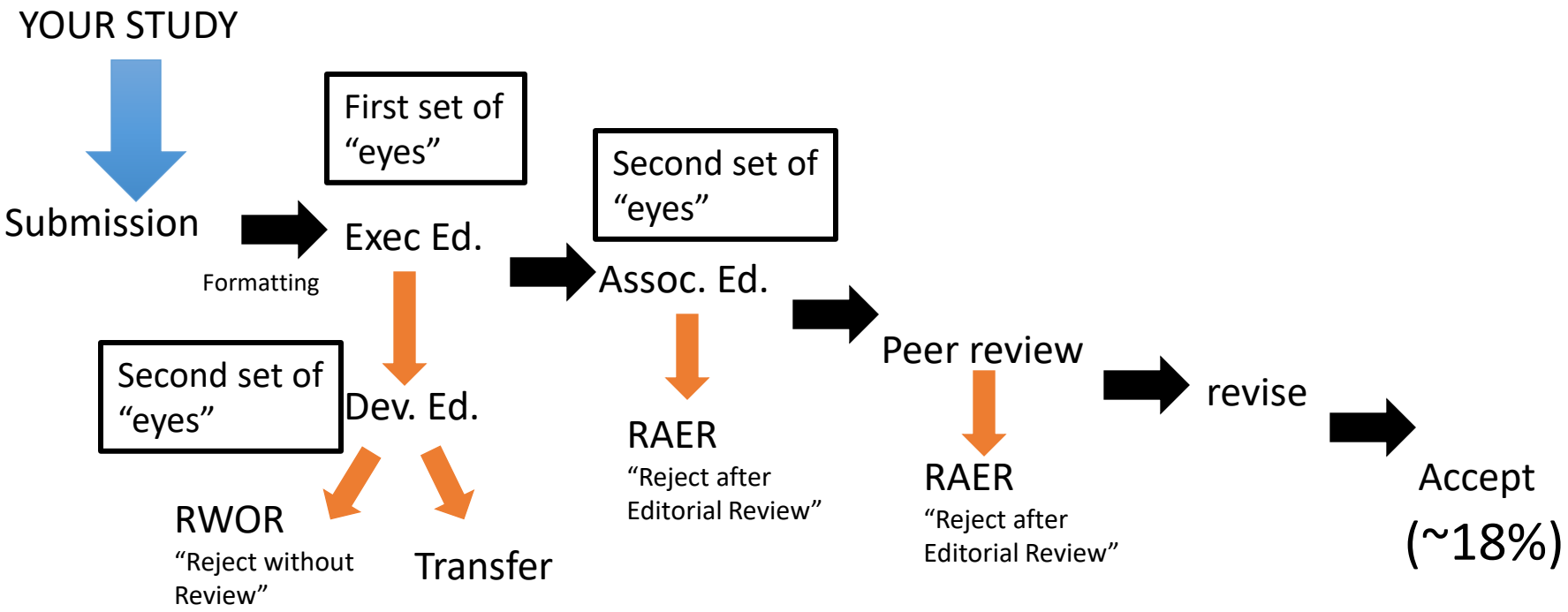
- Research Articles
- Critical Reviews
- Perspectives
- Policy Analysis
- Features
- Viewpoints

ACS Publications
MOST TRUSTED. MOST CITED. MOST READ.

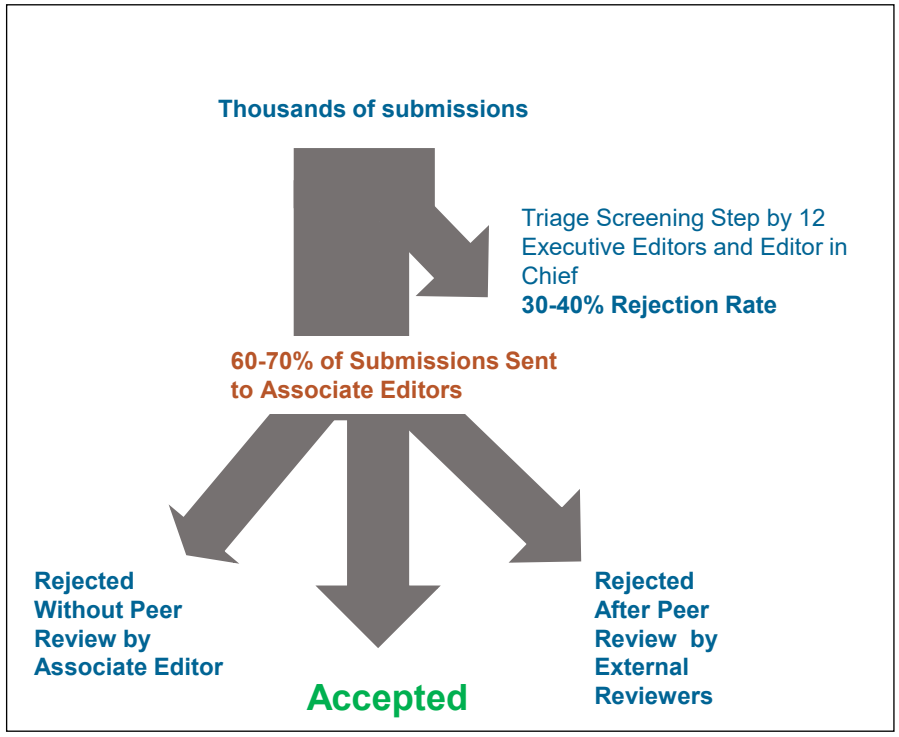
Editorial Process

- First submission to Executive Editor
  - Word count?
  - Presentation (Graphics/Language)?
  - Overall Scope (Appropriate)?
- Associate Editor
  - Scope (Novelty/Urgency) will it be cited?
  - Presentation quality (Hypothesis?)
  - Methods (Statistics; Controls---positive?)
  - Decision
- Reviewer (3X ES&T; ES&TL)

The “Black Box” of Publishing



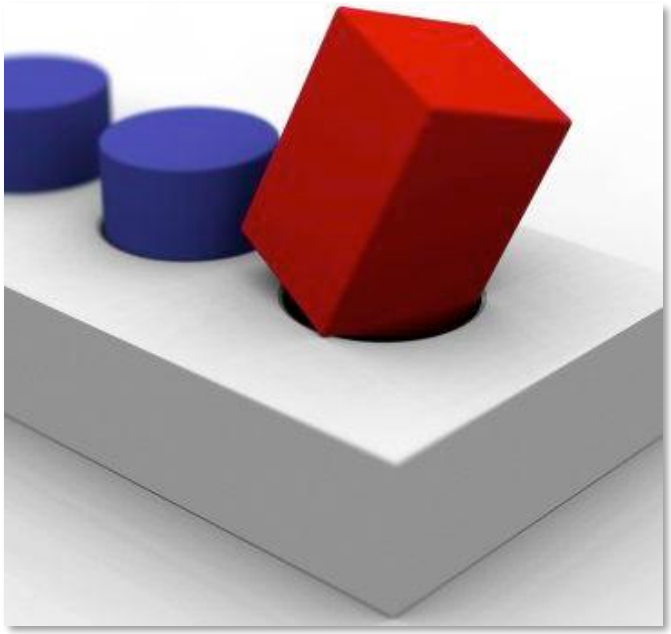
Workflow and Triage



Determining Appropriate Fit

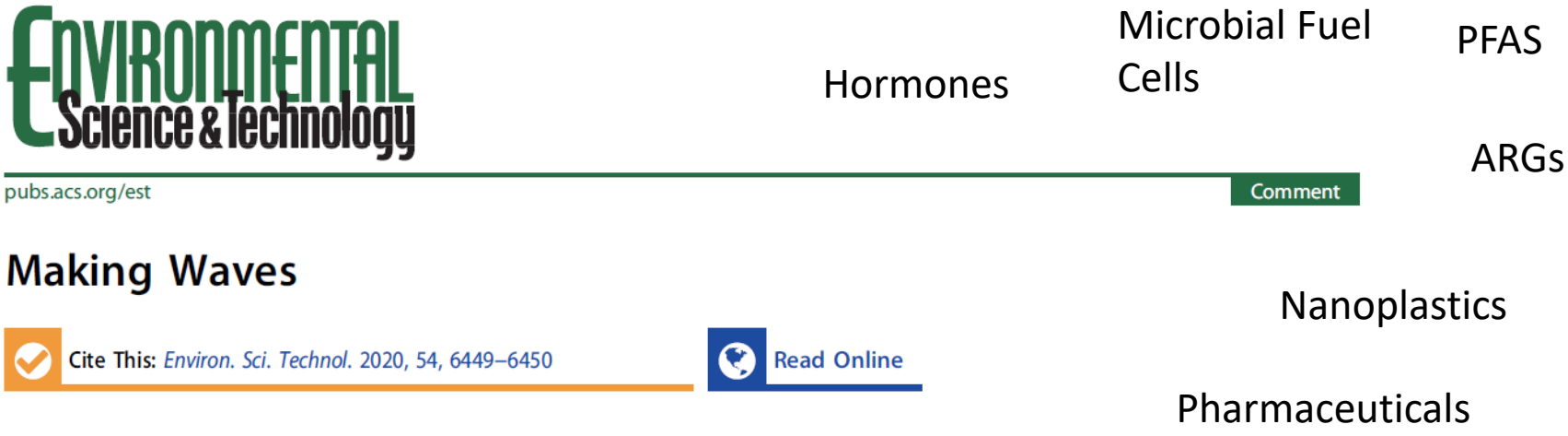
- Editors will consider your Title, Abstract and Submission Letter to establish fit with the journal

- If in doubt, consider your manuscript's references (small number of ES&T/L citations often suggests a poor fit)



What is ES&T looking for? READ THE SCOPE!!!

ES&T is looking for high quality, novel science that is of broad interest and relevance to the environmental research community, as described in more detail in the ES&T editorial "Making Waves"



Points to Consider

- Clearly articulate the environmental relevance of the work to the BROAD Environmental Community
- Clearly indicate the NOVELTY of the work relative to the state of the art
- High Scientific Rigor
  - QA/QC, uncertainty/statistics, replication
- Results should be generalizable to the environmental community
  - Mechanism, approaches/methods, interpretation

The Quality/Quantity Tradeoff

Previous Publications Can Reduce <u>Novelty</u>

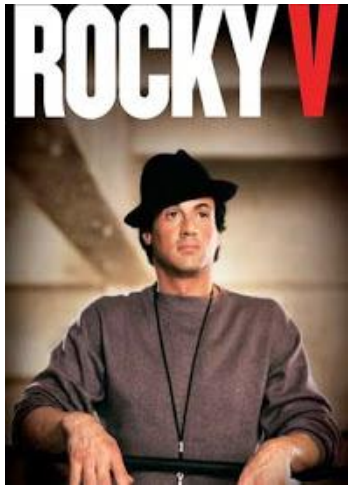
➔ Incremental? Will be rejected.

Other Journals May be Better Venues for Research that:

➔ Reinforces existing idea

➔ Includes routine data

➔ Optimizes existing technology

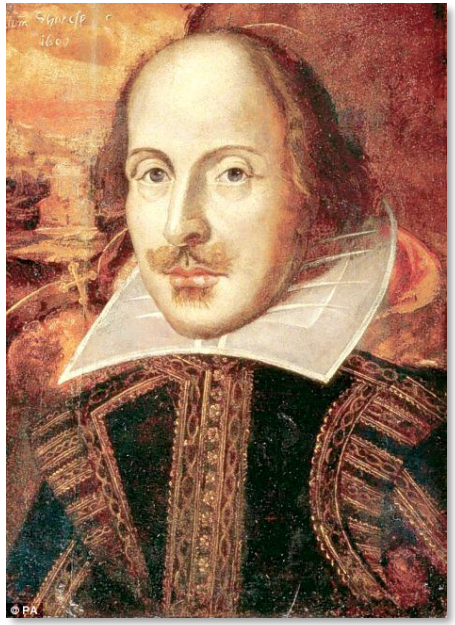


Does it Contain Fatal Flaws?

Fatal Flaw: Cannot be Fixed Upon Revision

- ➔ Previous research not fully considered ("this is the first…"
- ➔ Shortcomings in methods or analysis
- ➔ Unjustified assumptions or conclusions
- ➔ Associations vs. causal (may cause….)

Is it a High Quality Presentation?



English

- ➔ Minimum expectation
- ➔ Higher quality improves review outcome
- ➔ Editing services available if needed
- ➔ Chat GPT?

Common Weaknesses

- ➔ Failure to follow directions (e.g., lengthy introduction, conclusions, etc.)
- ➔ Failure to highlight <u>novel</u> contribution
- ➔ Bad graphics (Too many sub figures)

Please avoid….

Resubmitting a Previously Rejected Paper

➔ New title for same idea is not enough

➔ Only resubmit if invited by editor

Listing Authors who did not Contribute

Plagiarism

➔ You cannot copy text, figures from others

➔ Changing some words does not help

Self-Plagiarism

➔ You cannot reuse text, figures, data

Before you submit a manuscript…

1st impressions

- Title
- Poor grammar (in the Abstract)
- Toxicological Studies
  - Measured Chemistry over Nominal
  - Multiple Exposure Concentrations
    - **Environmentally relevant**
    - **MP/NP need UV….**
  - Positive and Negative Controls
    - Inhibitor/Antagonist/Rescue
  - Avoid Descriptive “omic” studies
    - State Hypothesis
    - Phenotypic Anchoring
  - Molecular Docking requires quantitative data (Kd or inhibitor studies for confirmation)
- Figures!

Figures

- Nothing demonstrates the quality of the paper more than the quality of the figures!
  - Bad figures = bad science?
- Create beautiful figures.
  - They provide clarity to your results, and demonstrate a professional approach and tells the reader you pay attention to details.
  - Are your figures appealing? Or a bit scary… (!)

Watch font sizes…
here, the legend is impossible to read…

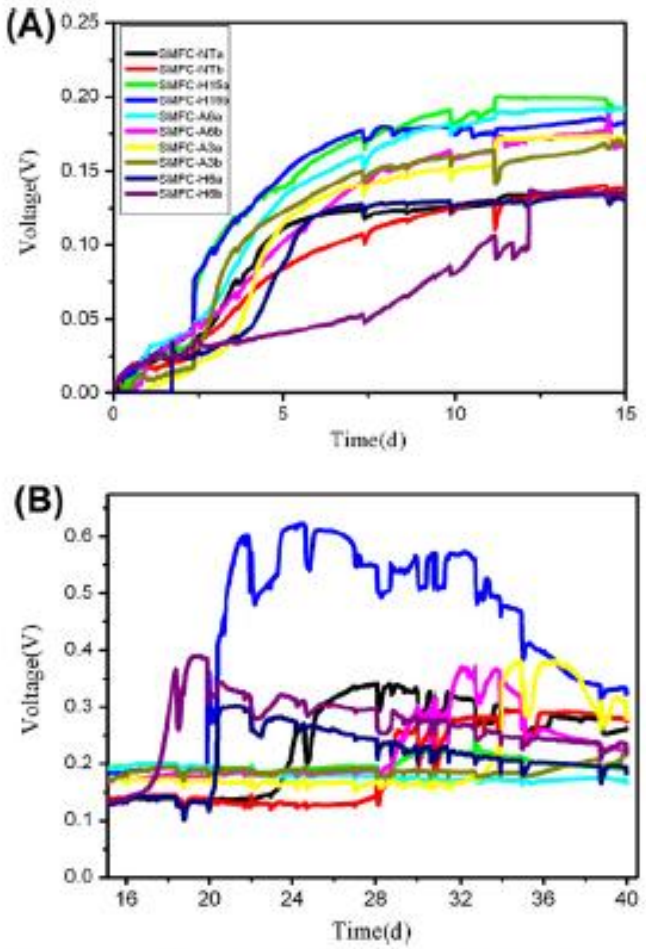
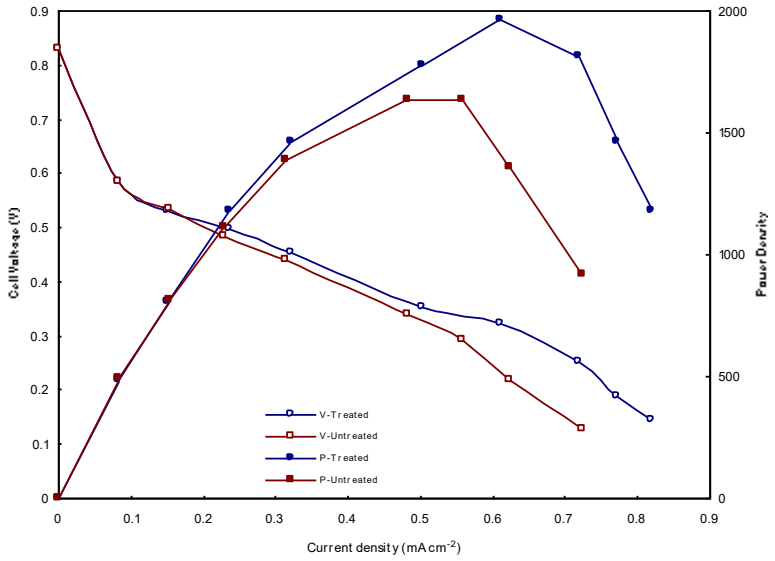


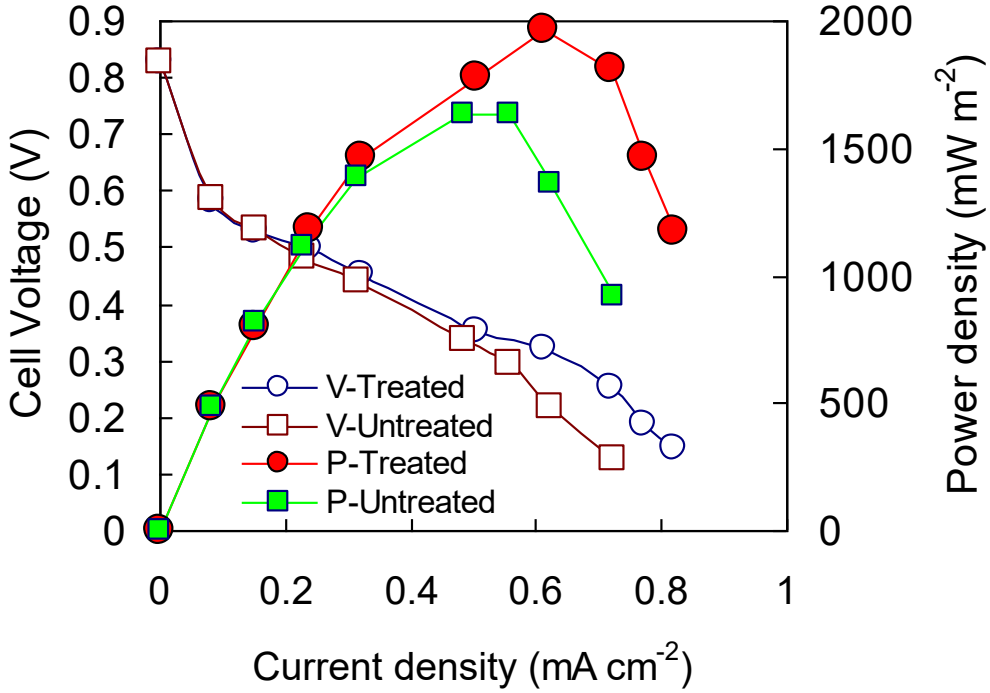
Fig. 1. Voltage generation of SMFCs produced with sediments subjected to different pretreatment methods. (A) 0–15 days and (B) 15 days onwards.

Graphs and Figures:

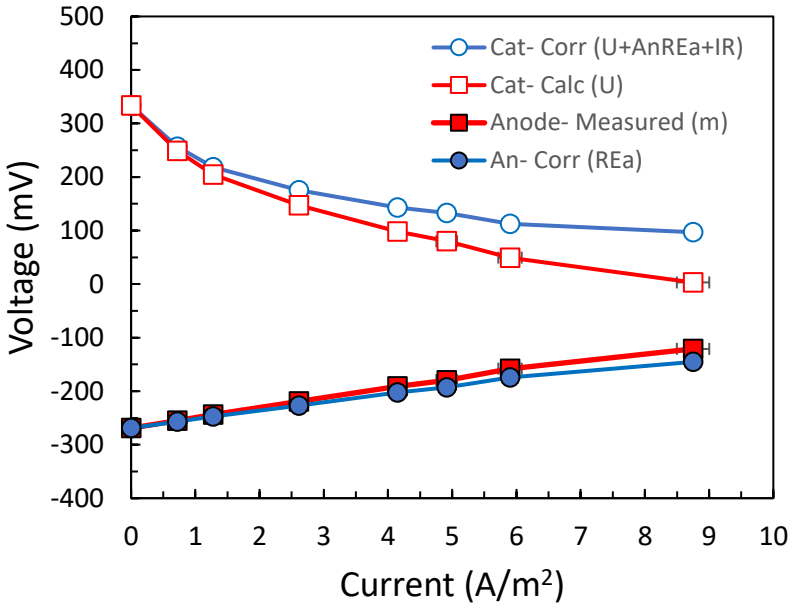
If you use the Excel default font size, it is probably too small!

Increase font and marker sizes

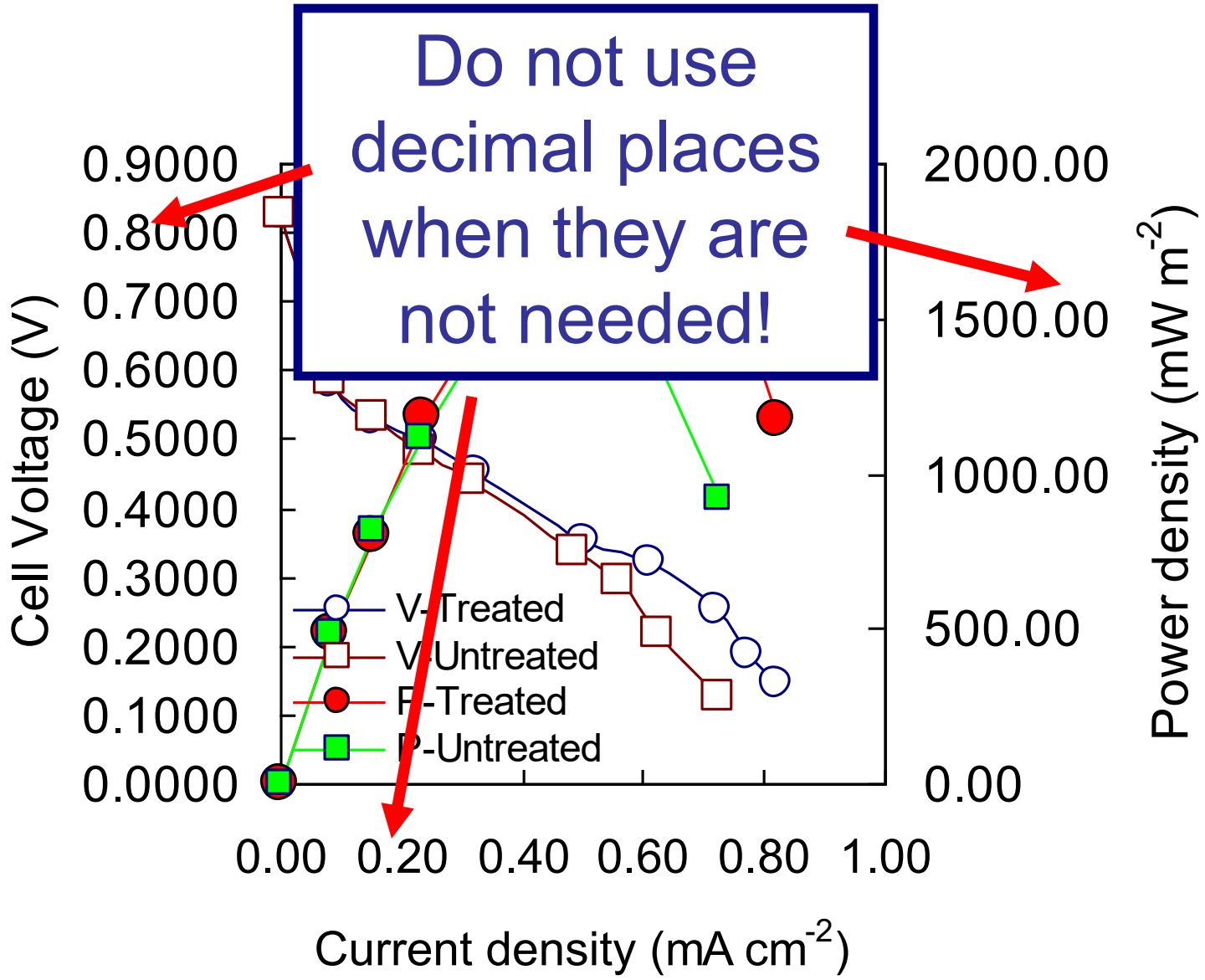




Consistent colors help

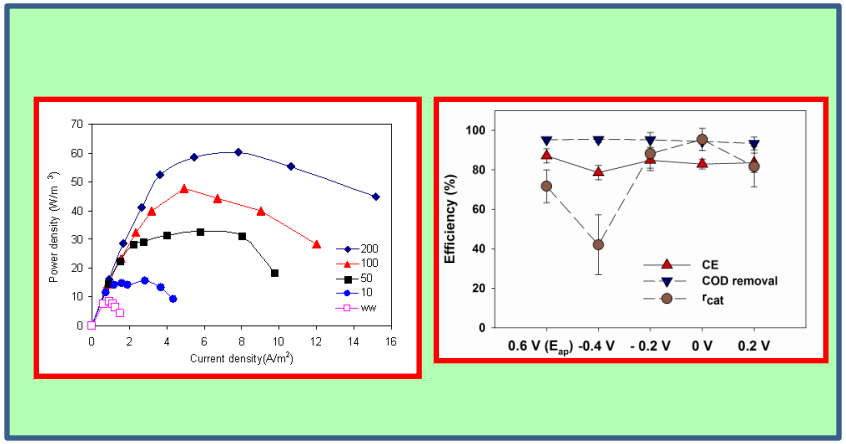


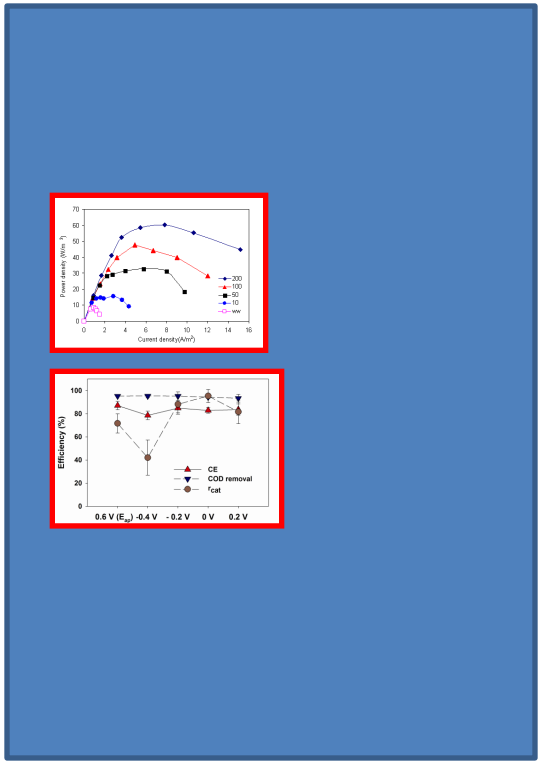
- Fonts: Ariel or Calibri, or ?? (Avoid Times New Roman and similar fonts)
- Color code as much as reasonable/possible
- Keep legends informative (difficult in this case without equations)
- If legend the same in multiple plots, only show once (not the case here)

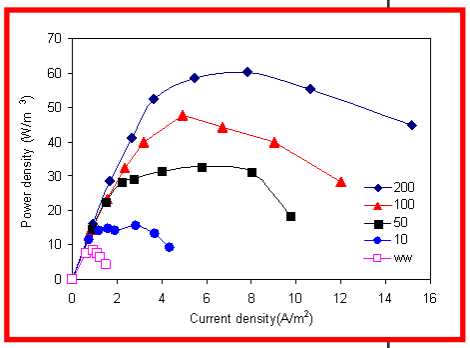


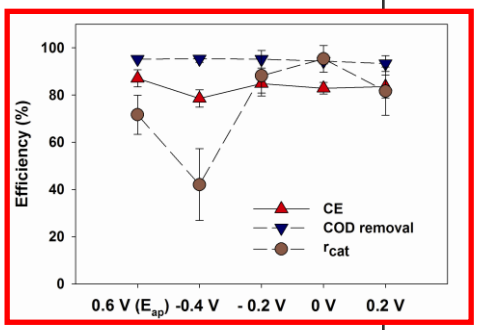
Adapted from: Cheng & Logan (2006) *Electrochem. Commun.*

Powerpoint formats vs Papers









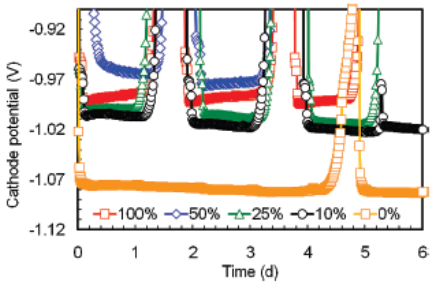


FIGURE 3. Cathode potentials (versus Ag/AgCl) versus time for consecutive batch cycles using SS brush cathodes with different bristle loadings at $E_{ap} = 0.6$ V.

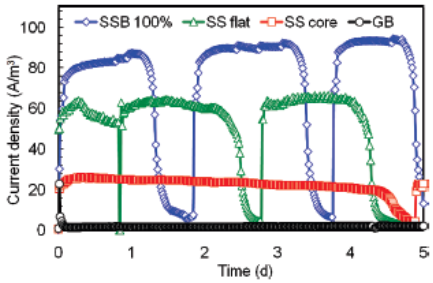


FIGURE 4. Current densities versus time for a 100% loaded SS brush cathode (SSB 100%), a flat SS cathode (SS flat), a SS brush core (SS core), and a graphite brush cathode (GB) at $E_{ap} = 0.6$ V.

graphite brush. Thus, large surface area alone could not account for the performance of the SS brushes.

The importance of the SS as a catalyst was further verified by using a flat SS cathode in Reactor FC. Although the specific surface area of the flat SS cathode was more than a hundred fold smaller than the graphite brush cathode, current generation was greater (64 ± 2 A/m³). The current density produced by the flat SS cathode (2.6 cm electrode spacing) was also 2.7 times greater than the SS brush core (24 ± 0 A/m³; 3.5 cm electrode spacing). Although the flat SS cathode had a slightly larger surface area ($A = 7$ cm²) than the SS brush core ($A = 2.4$ cm²), the higher current density of the flat SS cathode suggests that the orientation and distance of the cathode was more important for increased current density than surface area.

Comparison to a Platinized Cathode. Because the brush bristle loadings did not have an appreciable impact on current production, it was believed that the main factor limiting power generation was electrode distance. Therefore, a fully loaded SS brush was trimmed in half and placed as close as possible above a similarly trimmed graphite brush anode (Reactor VB, $A_S = 810$ m²/m³) in order to create a configuration capable of generating current densities similar to Pt/C cathodes (6). During the first few cycles, the current density was greater in the MEC using the Pt/C cathode (Reactor FC) than in the MEC with the vertically aligned SS brush cathode (Figure 5). Within four cycles, however, Reactor VB was producing the highest current density of 194 ± 1 A/m³, compared to 182 ± 2 A/m³ for Reactor FC. For the final three batch cycles, both reactors generated a similar average current density, with

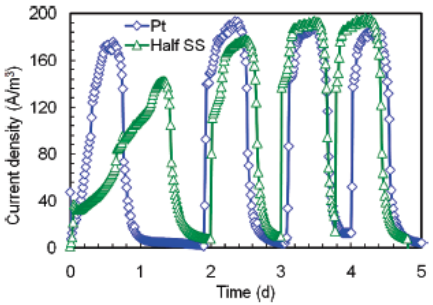


FIGURE 5. Current density versus time for both the platinized carbon cloth cathode (Pt) and the SS brush cathode cut in half (Half SS) at $E_{ap} = 0.6$ V.

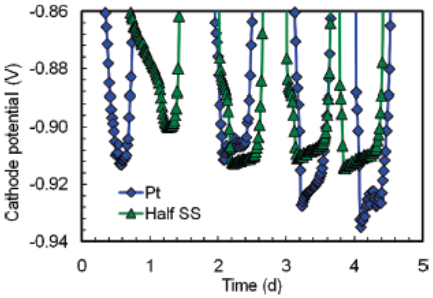


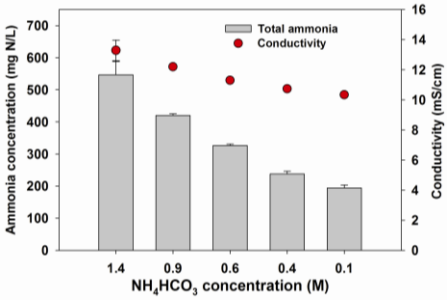
FIGURE 6. Cathode potentials (versus Ag/AgCl) versus time for both the Pt/C cathode and the SS brush cathode cut in half (Half SS) at $E_{ap} = 0.6$ V.

Reactor FC reaching 188 ± 10 A/m³ and Reactor VB obtaining 186 ± 2 A/m³.

The higher current density of Reactor VB with the SS brush was a result of a lower cathodic overpotential than that of Reactor FC with the Pt/C cathode (Figure 6). During the first batch cycle, the Pt/C cathode had a higher overpotential than that of the SS brush, likely due to the higher current density. By the second cycle, both the SS brush and Pt/C cathode exhibited roughly the same overpotential, but several later cycles the Pt/C cathode showed an increase in overpotential (cycles 3 and 4). This trend may have been due to minor Pt catalyst inactivation in combination with an activation of the SS for the hydrogen evolution reaction (HER). After the first two cycles of reactor acclimation, the SS cathode in Reactor VB produced a cathode potential of −0.910 ± 0.002 V, whereas the Pt/C cathode exhibited a higher overpotential with a value of −0.924 ± 0.003 V. These potentials correspond to cathodic losses of about 0.29 V for the SS brush and 0.30 V for the Pt/C cathode relative to the equilibrium potential of hydrogen formation (−0.62 V vs Ag/AgCl).

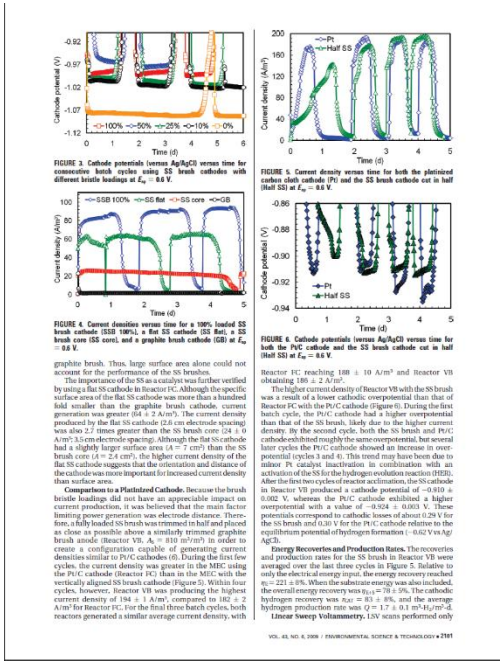
Energy Recoveries and Production Rates. The recoveries and production rates for the SS brush in Reactor VB were averaged over the last three cycles in Figure 5. Relative to only the electrical energy input, the energy recovery reached $\eta_E = 221 \pm 8\%$. When the substrate energy was also included, the overall energy recovery was $\eta_{E+S} = 78 \pm 5\%$. The cathodic hydrogen recovery was $r_{CAT} = 83 \pm 8\%$, and the average hydrogen production rate was $Q = 1.7 \pm 0.1$ m³-H_2/m³-d.

Linear Sweep Voltammetry. LSV scans performed only



Figures- Overview

- Legends and notation
  - Keep notation simple: avoid long subscripts and superscripts
  - Legends should be clear (no boxes; all text inside the plot)
  - Don’t repeat information (i.e. same units in all items)
- Fit the figure into one column width.
- Figures should have:
  - Large fonts
  - Large symbols (markers)
  - No bold letters (they don’t reduce in size well)
  - No grid lines
  - Good use of marker types, colors, and shapes:



Figures- Overview

- Put all legends within the plot box, with no line around the legend box.
  - Either use legends or don't; don't mix it up within one paper.
  - Keep legends simple.
  - You only need one per figure if all plots the same.
- Avoid extra "non-information"
  - Use inside ticks (major and minor).
  - Choose colors so that the symbols, lines or bars all show well in black and white and color.
  - Do not use smoothed lines (just connect points).
  - Connect axes to form a boxed in plot
  - Use error bars when possible.


You will never get
a second chance
to make a first
impression

Questions? Comments?