Creating and Delivering a Winning Poster

Dr. Robert M. Ramirez
rramirez@sfsu.edu
Associate Dean,
College of Science & Engineering
Purpose of a poster.

To communicate/publicize your information to others

- Research or experimental results.
- Report a study.
- Outcome of a project.
- The characteristics of your organization.
- Clear & Effective

Presenter must be

- Knowledgeable
- Enthusiastic
Poster must do the following:

Describe …
… The question that is asked or the “gap” in our knowledge.
… the means by which you addressed this.
… your results that must “persuade” us.
… your conclusion & why it is significant or important.
**Types of Posters**

**Vertical or “portrait”**

![Types of Posters: Vertical or “portrait”](image)

**Horizontal or “landscape”**

![Types of Posters: Horizontal or “landscape”](image)

**Three problems of speciation via unidirectional CI**

... and why it might still happen

Mathiiss Flori, Arndt Telschow1, Yutaka Kobayashi, Jack Werren, Peter Hammerstein

1Institute for Theoretical Biology, Humboldt University, Berlin, Germany. 2Center for Ecological Research, Kyoto University, Kyoto, Japan. 3Department of Biology, University of Rochester, New York, USA.

---

**Introduction**

If reared and unselected host populations occur sequentially, unidirectional cytoplasmic incompatibility (CI) causes a mutating isolation barrier between the populations. However, in order for CI to overcome speciation, those problems must be overcome: (1) the maternal polyplody of neighboring host populations must be stable, (2) gene flow must not dilute differences between diverging populations, and (3) maternal selection of female mating preferences must not exist to prevent recombination promoting isolation. We investigate these issues theoretically in a two-population model.

---

**Reinforcement model**

Savolainen (2006) developed a two-population model for reinforcement based on (1) nuclear incompatibilities (N), (2) that a male and female mate selection be used in a context female mating preference which can change under certain parameters. In fig. 1, the model is depicted with MN recombination CI.

---

**1 Stability of CI patterns**

A basic requirement for a reinforcement process is to take place in Matthiiss Flori et al. (2007) for gene flow among populations with different CI patterns can be achieved by gene flow from a CI-free population.

**2 Gene flow reduction**

Does a stable CI pattern allow genetic divergence between host populations? Telschow et al. (2007) introduced the effective population size of a CI-free population to maintain the effective migration rate (1/m) by considering the maternal rate of migration (which is the effective migration rate). For migration rates that are not affected by the CI, the effective migration rate can be estimated using the effective population-size coefficients. Gene flow is reduced by increasing the population size, and the differences in patterns between the CI and the CI-free populations are more pronounced.

**3 Runaway selection**

Previous models have revealed that the spread of a novel mating preference is driven by the effective migration rate of the CI. Telschow et al. (2007) demonstrated that in the case of effective migration rate (1/m) the female half of the migration rate is the CI effective migration rate is the effective migration rate.

---

**Conclusions & Outlook**

Our model shows that stable unidirectional CI may suffice to start reinforcement process with mating preferences in combination with other genetic isolate but increase the stability of CI process.

Koide et al. (2006) proposed a model with maternal polyplody in a system of two clonal related Drosophila species with CI and an additional CI-free species that shows maternal CI patterns can change under certain parameters. Our model shows that the effective migration rate of CI may suffice to start reinforcement process with mating preferences in combination with other genetic isolate but increase the stability of CI process.

---

**Acknowledgements**

The work was partly supported by IDERG (the Deutsche Forschungsgemeinschaft, SFB 616), and the project of Biocatalysis (SFB 616), Germany.

---

**Copyright:** Robert Ramirez, SFSU S’18
Before starting...

- Know your intended audience.
- Decide upon the “basic message”.
- Gather your information, graphs, tables, photos, etc.
- Allocate the correct amount of space.
- Allocate **TIME** to design the poster; this is especially true if there are several partners.
- Pre-sketch a layout.
- Be clear in your ideas and simple in your presentation.
Who is the audience?

- Are they people in your own specialty?
  → Then you can use some jargon (i.e. words used in your profession) & some shortcuts.
- Are they people in a related field?
  → Then use less jargon, but you can assume they have basic knowledge.
- Are they people in an unrelated field?
  → Then use basic, simple language & terms.
What is the message?

- State the main point(s) and conclusions succinctly.
  A short but informative title + an effective abstract & introduction.
- All other points should relate to the main title.
- You do not have to include everything. Other corollary findings can be summarized as “bullet points”.

Copyright: Robert Ramirez, SFSU S’18
Be strategic!

- How to present your data?
  - *Tables are better than written text.*
  - *Figures are better than tables.*
- Use short, informative statements.
- This is not a publication … you don’t have to present a graph or table for everything!
- Use graphs/tables for **most important data**.
- Check spelling and grammar.
Banner:
Concise Title, Author(s), Affiliation (legible @ 20 ft)

Methods:
What did you do? (How?). Enough detail to ascertain validity (Correct method? Reproducible?)

Abstract:
Three parts:
✓ Hypothesis or objectives
✓ Short methods & Results.
✓ Conclusions or significance.

Introduction:
• Essential background information.
• Why is this problem being researched?
• What is your objective or questions?
• What is your hypothesis?

Results:
What did you observe? (Outcome?). Arrange data (graphs or tables) in logical order. Enough data to support conclusions

Discussion:
• What do your results “mean”? (don’t repeat results).
  Address any contradictions.
• How does this support your hypothesis?

Acknowledgements:
Grant agency or special assistance.

Copyright: Robert Ramirez, SFSU S'18
General Suggestions:

**LAYOUT**

- Use numbered heading sub-titles so that audience reads the poster *in the order that you want*.
- Balance placement of text and graphics (symmetry).
- Don’t CRAM! Use white spaces between sections.
- Follow normal flow of reading: Top to bottom, left to right.
- Use Left-justification alignment of text.
General Suggestions: Text and Font

- Use a simple font (sans serif) throughout.
- Examples:
  
  Sans Serif = Arial (simple)
  Serif = Times New Roman (less simple)

- Use key words and phrases. Omit unnecessary words or language.
- Use large font size: 18 point for smallest text, 24 point for regular text, 28 point for subtitles, 48 point for main title in banner (smaller font for authors and affiliation).
General Suggestions: Photos, figures and tables

- Should be clear, self-explanatory, uncomplicated, and sufficiently large.
- Tables and figures must have titles.
- Tables: columns and rows should have titles.
- Graphs: horizontal and vertical axes should be labeled. Symbols for each condition (●, ◆, ○, Δ) should be robust (visible at 3-4 feet). Line on graph should be “tagged” with a label.
- Photos: Should be cropped & enlarged to clearly show your key point.
General Suggestions: Photos & figures

BAD

BETTER

Copyright: Robert Ramirez, SFSU S'18
General Suggestions: Color and Contrast

- Use a white background but a colored border line to draw attention to important parts of your poster.
- White background also saves ink.
- Use pleasing contrast to reduce eye strain.

Good: This is a **good contrast** for a poster.
Poor: This is a **poor contrast** for a poster.
Good or Bad?
Good or Bad?
Good or Bad?
Good or Bad?
Bad or Good?

Cooling Effects of Dirt Purge Holes on the Tips of Gas Turbine Blades

Eric Couch, Jesse Christophel, Erik Hohlfeld, and Karen Thole

Gas turbine engines run better at higher combustion temperatures

At higher combustion temperatures, these engines generate more power and use less fuel. However, these temperatures are restricted by melting temperatures of the turbine blades downstream of the combustor (see Figure 1).

Figure 1. Pratt & Whitney F119 gas turbine engine.

Dirt purge holes on turbine blade tips allow for higher combustion temperatures

Harmful hot gases from the combustor leak across the gap between the blade tip and the shroud (see Figure 2). Dirt purge holes expel foreign particles from the blade tip so that film cooling holes are not blocked.

Figure 2. Flow at the tip region of a turbine blade.

The project goal was to find the film cooling effects of these dirt purge holes

To find the effects, we performed wind tunnel experiments with scaled turbine blades. The wind tunnel was low speed and low temperature, and the blades, shown in Figure 3, were scaled at 12 times their normal size. To measure temperatures on the blade tip, we used an infrared camera. Tip gap sizes and amount of coolant flow from the dirt purge holes were both varied.

Figure 3. Large-scale turbine blade in wind tunnel.

Temperature measurements were converted to dimensionless cooling effectiveness

\[ \eta = \frac{T_{in} - T_{aw}}{T_{in} - T_c} \]

where
- \( T_{in} \): mainstream temperature
- \( T_{aw} \): coolant temperature (on tip surface)

Cooling increased with blowing ratio

The effectiveness contours of Figure 4 show that cooling increased with blowing ratio.

Figure 4. Measurements of film cooling effectiveness.

Tip size dramatically affected cooling

In Figure 5, the lateral averages of effectiveness plotted against the axial chord length show that tip size dramatically affected the cooling.

Figure 5. Laterally averaged effectiveness plotted against normalized axial chord.

In summary, dirt purge holes provide cooling to the tip surface

While intended to remove dirt from the blade, dirt purge holes also provide cooling to the tip surface. This cooling is enhanced with a small tip gap as the dirt purge flushes the tip region near the leading edge with cool air.

Acknowledgments
The sponsor for this project was Pratt & Whitney.
Good or Bad?

The neural representation of behaviorally relevant acoustical sequences

Neurons in NCM are sensitive to temporal combinations of song elements

Starlings can discriminate between probabilistic acoustical sequences

Responses in NCM are biased by the familiarity of elements & sequences

Copyright: Robert Ramirez, SFSU
S'18
Good Visual Communication

Poster should …

- Be informative.
- Be a conversation starter.
- Capture the attention of as many people as possible within 15 seconds.
- Be pleasing to the eye & “exciting”.
- Be succinct and well organized.
- Be readable from 3–6 feet.
Poster preparation

Poster size for:
- Tri-fold poster = 48 in. length x 36 in. height.
- Foam board = 60 in. length x 40 in. height.
- First 60 posters = No charge.
- Prepare poster & send final version to: Impress Printing
  Details & account number to be announced.
On the Showcase day...

- Prepare & rehearse a 2–3 minute presentation for the judges.
- Focus on the main point. Explain how your different data support the main point.
- Explain why your research is important or how it solves a problem or need.
- Limit technical language ("jargon").
- Do you use a special technique? Then prepare a concise (3–4 sentence) explanation for it.
- Arrive early to set up. Bring your poster & tacks.
- Bring a 1–page version of poster (optional).
- Attend your poster from 2–5PM.