Creating and Delivering a Winning Poster

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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.
Three problems of speciation via unidirectional CI ... and why it might still happen

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Introduction

If infected and uninfected host populations occur panmatically, unidirectional CIs can create a strong selection against the uninfected population. However, in order for CIs to promote speciation, three problems must be overcome: (1) the infection of uninfected host populations must be stable, (2) gene flow must not eliminate differences between diverging populations, and (3) uninfected selection of female mating preference must be impossible to establish. We investigate these issues theoretically in three populations.

Reinforcement model

Telschow et al. (2009) introduced the idea of genetic drift in the context of coevolutionary dynamics. In this model, the populations are initially isolated from each other. Over time, genetic drift can cause the populations to become isolated, leading to the establishment of a CI. This model provides a framework for understanding how CIs can arise and persist in populations.

Stability of CI patterns

A basic requirement for coevolutionary pressures to act is that the parasitic reproductive barrier be stable in the face of migration. Following the model of Ushizawa et al. (2008), we present parameters for the vertical transmission of the CI. When the parameters are set appropriately, the CI is stable even in the presence of migration.

3 Gene flow reduction

The stability of CIs depends on the size of the effective population. The effective population size is the number of individuals in a population that contribute to the genetic diversity of the next generation. If the effective population size is small, the CI is likely to be stable. In contrast, if the effective population size is large, the CI is likely to be unstable.

Runaway selection

Previous models have suggested that the spread of a female mating preference of the preferred to the infected population (unpublished data). This occurs at the cost of and hence premating isolation cannot predict. The effect of gene flow is decreased by sexual isolation. If the effective population size is small, the CI is likely to be stable. In contrast, if the effective population size is large, the CI is likely to be unstable.

Conclusions & Outlook

Our model shows that stable unidirectional CIs may arise in two closely related Drosophila species. In our future work, we will test the validity of our model using genetic data from populations of Drosophila melanogaster and Drosophila simulans.

Acknowledgments

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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.

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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”.

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Be strategic!

- How to present your data?
  \emph{Tables are better than written text.}  
  \emph{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.
**Abstract:**
- Hypothesis or objectives
- Short methods & Results.
- Conclusions or significance.

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

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

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

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

**Acknowledgments:**
Grant agency or special assistance.

Use numbers to guide your audience.

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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 (●, ◆, ○, △) 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

Symbolic figures are indistinguishable

No label or numbers for the horizontal axis

BETTER

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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?

If you can read this you must be nocturnal...

Abstract

Introduction

Methods & Materials

Results

Discussion

Conclusion

References

Hypothesis

Questions

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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).

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.

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.

Temperature measurements were converted to dimensionless cooling effectiveness

Effectiveness \( E = \frac{T_{w} - T_{c}}{T_{w} - T_{a}} \) where

- \( T_{w} \): mainstream temperature
- \( T_{c} \): coolant temperature
- \( T_{a} \): ambient air temperature (tip surface)

Cooling increased with blowing ratio

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

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

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.

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 floods 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

and differentially weight individual transitions.

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10 rules to make a bad poster

- Wait until the last minute to design your poster.
- Boring is best.
- Include political or sexually offensive statements.
- No results? Then use a lot of pictures.
- Use a font size that will require the use of a magnifying lens.
- Don’t proofread; everybody else should “know” what your mistakes mean.
- Use 3000 words in your poster. Also provide armchair and some potato chips.
- Just show results, your audience doesn’t need know anything else.
- Don’t attend the poster session ... people know how to read on their own, anyway.
- Include “Spiderman” as the poster background.
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:
  OfficeMaxx ImPress Printing
Details on www.sfsu.edu/~science/sps.html

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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 a 1–page version of poster (optional).
- Attend your poster from 2–5PM.