

HOW TO DISTINGUISH A GOOD POSTER DESIGN FROM A BAD ONE....

THE GOOD

- * Clear, concise, informative
- * Strong use of visuals and headers for key points
- * Context - summary, key points of interest, future possibilities

GOOD POSTER DESIGN: GET THE PICTURE?^{2.}

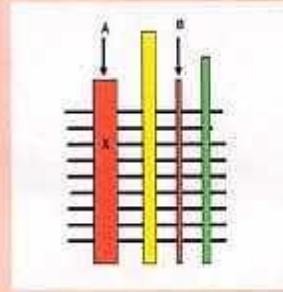
Your name, (cite your co-workers), Department of Applied Curiosity, University of Life, England. Give your full contact details and e-mail address. Your.Name@uol.ac.uk

SUMMARY

- Say why you're doing it
 - Say how you did it
 - Say what you found

BE IMAGINATIVE

- Show it visually



GIVE BACKGROUND

- Start with the basics



MAKE IT BIG

- BIG enough font size
- BIG enough images
- BIG enough margins

LESS IS MORE

- Make it understated
- Make it professional

DEVELOP AN EYE FOR detail

- Make it look like a work of art
- Get it nicely lined up

ACKNOWLEDGEMENTS

- Thank your collaborators and funding bodies.
- Thank anyone who helped you with your work.

SAY WHAT'S NEXT?

- Future work
- New possibilities



REFERENCES

- Limit yourself to the main few.
- Link them to relevant points in the poster.

THE BAD

BAD POSTER DESIGN: OUCH!

Your name, Department of Applied Curiosity, University of Life, England
Leave out your contact details or e-mail address).

Abstract

Repeat all the information provided in the book of abstracts.

Don't give background

Dive straight in with lots of meaty text. Don't give the impression you know why you are doing anything.

A thousand words speak a picture

Write a short novel here to describe your key results

Include the raw data

Make it far

too small

Use tiny font sizes.
Use tiny images.



Cram text in right up to the margins.

Don't say what's next

Leave the reader guessing at what you're planning to do next!

More is less

Make it brash and gaudy
Make it look gimmicky
Use a nice splash of colour
Play around a bit

Detail is not important

No one is bothered by petty details

Forget acknowledgements

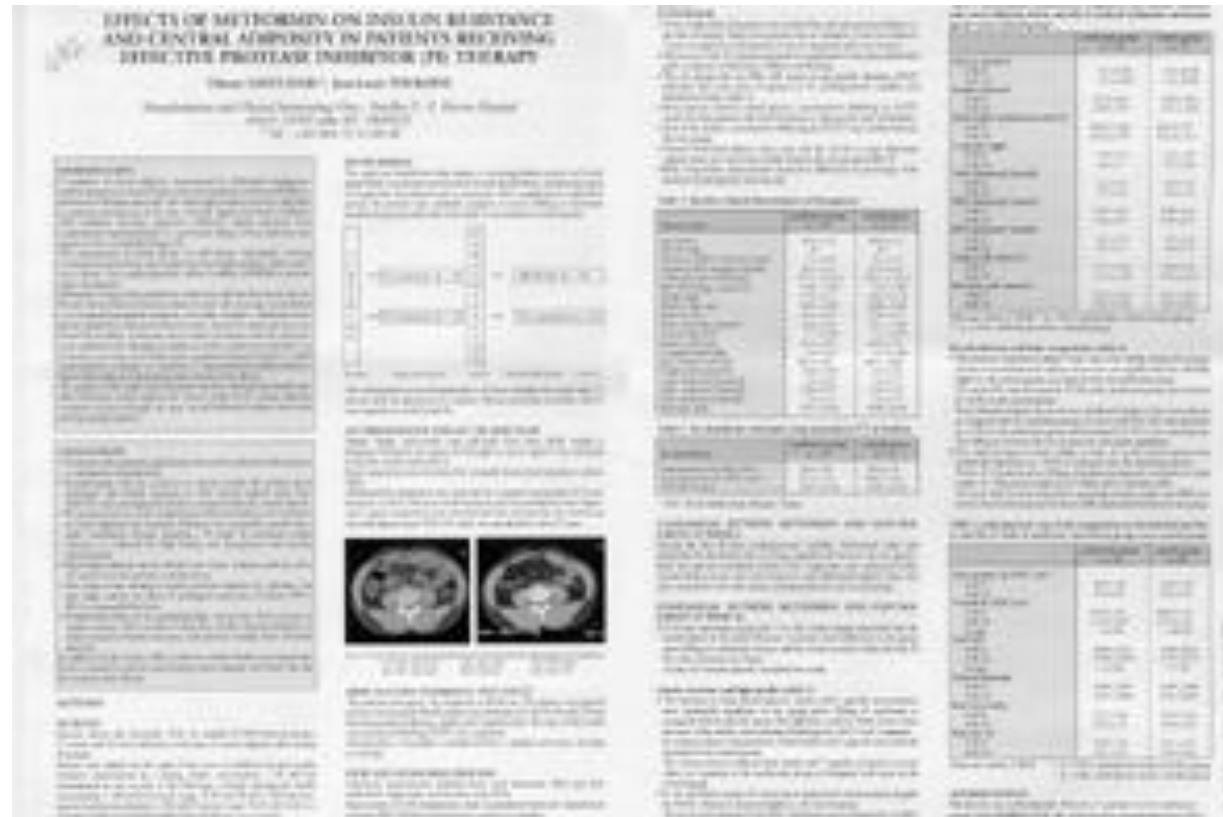
Don't thank anyone.

Don't bother selecting references

Just include all of them or none at all.
Don't link them to any relevant points.

- * No clear structure or context
- * Small graphics and text, lack of design consistency
- * Exclusion of key information, e.g. acknowledgements & references

AND THE UGLY



* Text Overload

* No hierarchy of information

* A book rather than a poster

EXAMPLE OF GOOD BASIC LAYOUT

Femtosecond Laser Ablation of Thin Nickel Films

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NUI Galway
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Introduction

The key advantage of femtosecond laser machining is the ability to deposit the laser pulse energy in a very short timeframe, which causes ablation to occur before significant thermal diffusion gives rise to undesirable melt regions in the surrounding area. The high peak power in the laser pulse also makes it possible to machine difficult materials such as glass. After the laser energy is absorbed in a metal, the high heating rate gives rise to a thin layer of ionised metal vapour which consists of neutrals, electrons, atoms and molten droplets. This layer (Knudsen layer) is then ejected at high speeds ($\sim 1 \times 10^5$ m/s) away from the surface (due to thermal stresses). The ablation plume is ejected along the normal to the surface of the metal. The directionality of the plume depends on the initial conditions of the plasma. Confinement of the heated volume was achieved using thin metal films (figure 1) deposited on a sapphire substrate (transparent to 775nm radiation). The directionality of the ablation plume was then compared for a range of film thicknesses.

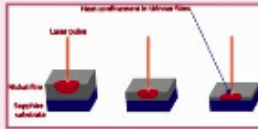


Figure 1
Heat confinement in thin Nickel Films



Figure 2
Typical ablation crater of thin film (5nm) showing damage to substrate and/or redeposited material

Experimental

A Clark CPA 2001 femtosecond laser system was used to produce 200fs pulses at a wavelength of 775nm. A fluence of 1.3 Jcm^{-2} was used for all measurements. A Langmuir probe consisting of an exposed tip of a cylindrical metal wire was used to measure the ion current of the flowing plasma. A bias of -25V was applied to the probe tip to repel electrons. The probe was hence used in the ion saturation regime. Experiments were carried out in a vacuum pressure of 10^{-5} Torr to avoid collisions between the expanding plasma and ambient gas molecules. Thin Ni films of varying thicknesses (25nm, 10nm, 5nm) were placed on a rotary stage inside the vacuum chamber to allow for a fresh area of the sample to be machined for each measurement. Ion signals from the Langmuir probe were recorded as voltage on an oscilloscope. Time of flight (TOF) signals were integrated with respect to time to calculate the total ion yield for the angle. Angular measurements were achieved by rotating the probe around the axis of the sample (figure 3). The angular distribution measurements were then fitted to Anisimov's model of gas expansion under vacuum conditions [1]. Kappa values were then extracted from the fit. (Kappa values are a measure of the forward peaking nature of the plume, a Kappa value of 1 would indicate a plume which is equally distributed in all ejected angles, higher kappa values indicate a more forward peaking plume).

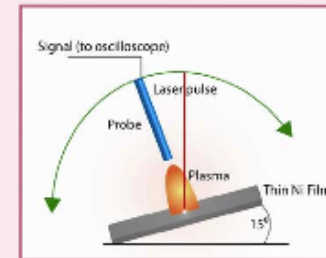


Figure 3
Experimental arrangement for angular distribution measurements

Results

Angular distribution measurements taken for three different film thicknesses (figures 4a, 4b, 4c). Kappa values were extracted from the fits to the data and indicated on the graphs. Higher kappa values were recorded for thinner films showing increased thermal confinement that leads to a more forward peaking plasma plume. Some data points are missing due to the probe blocking the laser pulse. The data was shown to be in reasonable agreement with Anisimov's model.

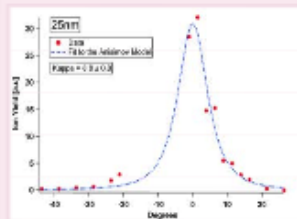


Figure 4a

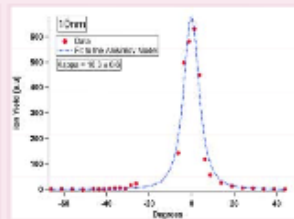


Figure 4b

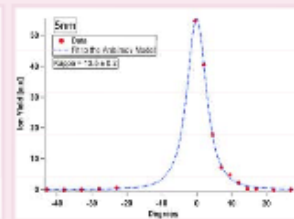


Figure 4c

Summary and Conclusions

- Thin films of Ni deposited on a sapphire substrate were ablated using 200fs laser pulses
- The ablation plume incorporated a significant amount of ionised metal vapour
- The directionality of the plasma plume was recorded using a Langmuir probe
- The forward-peaking nature of the plume was quantified by fitting the data to Anisimov's model of gas expansion
- Ablation of thinner films resulted in a more forward peaking plasma plume
- Thermal confinement in the film and hence increased thermal stresses within the heated volume are believed to cause a more forward peaking plume

[1] Anisimov, S.I., D. Bauerle, and B.S. Lukyanov. Gas dynamics and film profiles in pulsed-laser deposition of materials. Physical Review B, 1993, 48(14): p. 12076.

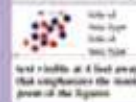



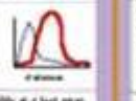
LAYOUT COMPARISON

DO THIS

Title makes a strong statement

Substance X induces Y cells

My name My Place

| | | | |
|---|--|---|---|
| <p>Context</p> <p>Y-cells require induction. X-substance may be the inducer because:</p> <p>We know typically neither have Y but here it on the bench!</p> | <p>2 X is expressed in Y-cells only</p>  <p>text visible at a font size that emphasizes the main point of the figure</p> | <p>4 Anti-X alters Y transcription</p>  <p>text visible at a font size that emphasizes the main point of the figure</p> | <p>6 Summary</p> <p>X is expressed in Y cells</p> <p>Induces Y expression</p> <p>Induces Y transcription factor</p> |
| <p>1 We created X-deficient mice</p>  <p>text visible at a font size that emphasizes the main point of the figure</p> | <p>3 Anti-X inhibits Y cell origin</p>  <p>text visible at a font size that emphasizes the main point of the figure</p> | <p>5 Y-cells need Y-transcription</p>  <p>text visible at a font size that emphasizes the main point of the figure</p> | <p>Conclusions</p> <p>X induces Y cells by inducing the Y transcription factor</p> <p>We Acknowledge NIH grant # XXX</p> |

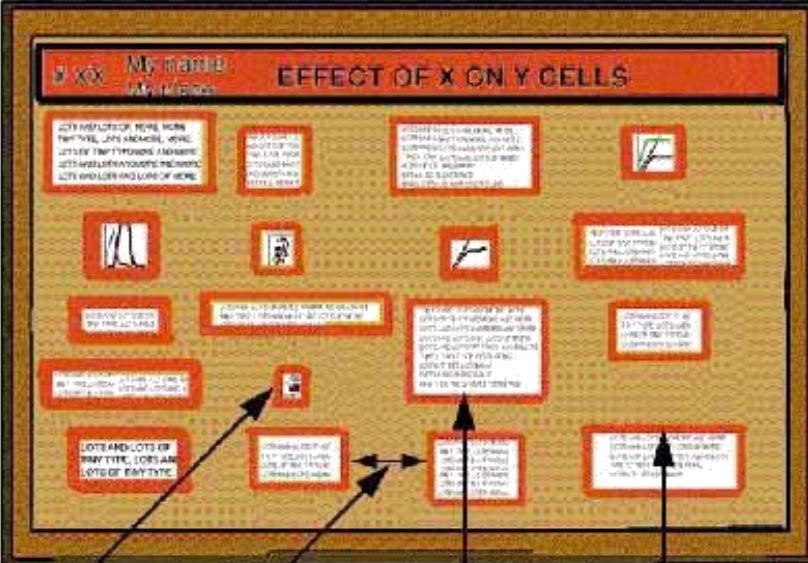
Summary states results

Conclusions interpret results

NOT THIS

My name My Place

EFFECT OF X ON Y CELLS



Tiny figures

Even spacing throughout

Type all the same size: tiny

No headings

TIPS FOR SUCCESS

DO THIS

- * **Emphasize using visuals** - graphic elements should dominate.
- * **Use graphics, cartoons, and figures instead of text.** Remember, a picture is worth a thousand words.
- * **Use color to emphasize** or to link words and images together.
- * **Use bold lines and obvious pattern** or color to distinguish figures.
- * **Use graph and table formats** that portray the data without reference to extensive keys.
- * **Write explanations** directly on the figures.
- * **Minimize abbreviations** and cross references.

NOT THIS

- * **Visually de-emphasize** to obscure your message.
- * **Portray the main points in the smallest type.**
- * **Avoid color** - think grey or monochrome.
- * On graphs, **use thin lines or bars** with patterns that are **hard to distinguish.**
- * **Make all figures** so **small** that the important information is invisible from 2m away.
- * **Use complicated legends** far that require the reader to constantly look back and forth between figure and legend.
- * **Use lots of acronyms and shorthand** that the viewer has to memorize or constantly look up.

EXAMPLE OF AWARD-WINNING POSTER

NC STATE UNIVERSITY



Southern Flounder Exhibit Temperature-Dependent Sex Determination

J. Adam Luckenbach*, John Godwin and Russell Borski
Department of Zoology, Box 7617, North Carolina State University, Raleigh, NC 27695



Introduction

Southern flounder (*Paralichthys lethostigma*) support valuable fisheries and show great promise for aquaculture. Female flounder are known to grow faster and reach larger adult sizes than males. Therefore, information on sex determination that might increase the ratio of female flounder is important for aquaculture.

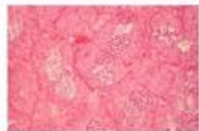
Objective

This study was conducted to determine whether southern flounder exhibit temperature-dependent sex determination (TSD), and if growth is affected by rearing temperature.

Methods

- Southern flounder broodstock were strip spawned to collect eggs and sperm for *in vitro* fertilization.
- Hatched larvae were weaned from a natural diet (rotifers/*Artemia*) to high protein pelleted feed and fed until satiation at least twice daily.
- Upon reaching a mean total length of 40 mm, the juvenile flounder were stocked at equal densities into one of three temperatures 18, 23, or 28°C for 245 days.
- Gonads were preserved and later sectioned at 2-6 microns.
- Sex-distinguishing markers were used to distinguish males (spermatogenesis) from females (oogenesis).

Histological Analysis

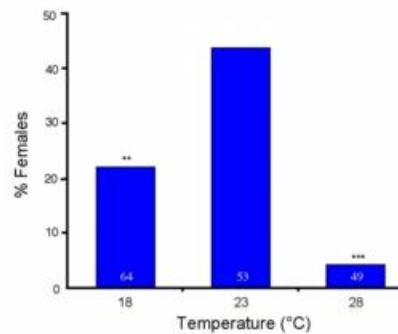


Male Differentiation



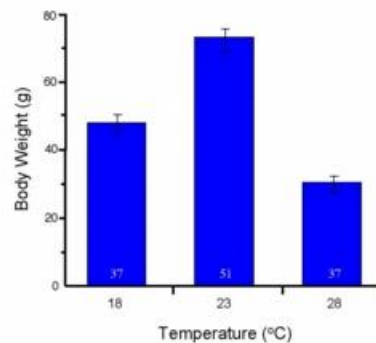
Female Differentiation

Temperature Affects Sex Determination

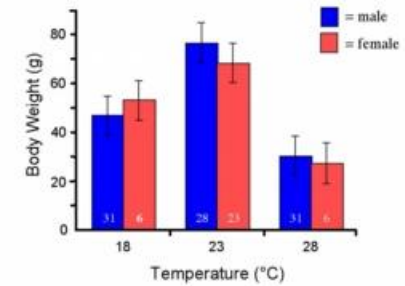


(**P < 0.01 and ***P < 0.001 represent significant deviations from a 1:1 male:female sex ratio)

Rearing Temperature Affects Growth



Growth Does Not Differ by Sex



Results

- Sex was discernible in most fish greater than 120 mm long.
- High (28°C) temperature produced 4% females.
- Low (18°C) temperature produced 22% females.
- Mid-range (23°C) temperature produced 44% females.
- Fish raised at high or low temperatures showed reduced growth compared to those at the mid-range temperature.
- Up to 245 days, no differences in growth existed between sexes.

Conclusions

- These findings indicate that sex determination in southern flounder is temperature-sensitive and temperature has a profound effect on growth.
- A mid-range rearing temperature (23°C) appears to maximize the number of females and promote better growth in young southern flounder.
- Although adult females are known to grow larger than males, no difference in growth between sexes occurred in age-0 (< 1 year) southern flounder.

Acknowledgements

The authors acknowledge the Saltonstall-Kennedy Program of the National Marine Fisheries Service and the University of North Carolina Sea Grant College Program for funding this research. Special thanks to Lea Ware and Beth Shamps for help with the work.

REVIEWER'S COMMENTS

POSITIVE POINTS

- * The **title** conveys the main **message instantly**.
- * **Context** and **objectives** are made **clear**.
- * **Methods** are **concise**.
- * **Graphs are interpreted by their titles**.
One can read the titles and trust the authors, or examine the graphs in more detail.
- * **Results and conclusions are concise** and relate back to objectives.
- * **Color scheme** is very **simple** and pleasing.
- * **Font is large** enough everywhere, including figures.

NEGATIVE POINTS

- * **Results and conclusions do not relate back to context (Introduction)**. It would be nice to see a statement of how the findings relate to aquaculture.
- * Some viewers have noted that the **title could be more direct**: "Temperature Determines Sex of Southern Flounder"
- * **Title font is on the small side** - could be larger.
- * Some viewers have felt there is **too much white space** between the columns. It could be reduced somewhat, but not too much.