

# ME Course and Conference Poster Design & Submittal Guidelines

Printing is available for Mechanical Engineering faculty and students for research and academic purposes only.

Posters will be printed **once**, so check carefully for typos, omissions, and errors before submitting. We cannot provide multiple copies.

Posters may not print as they appear on screen so it is important to **print out a small letter size version of your poster and check it carefully**, then have someone else in your group check it again **before you submit it for printing**. Obtain any necessary faculty approvals/edits prior to submittal.

**Do not wait until the last minute to submit your file for printing.** All files must be submitted **at least two full working days before they are needed**. During times of heavy demand at end-of-semester they may need to be received a **week or more** in advance. For course related posters your instructor will give you a due date and procedure for submitting it.

Posters should be **designed in PowerPoint at the size they need to be printed**. If you need it 24 x 36, design it at that size. Up-scaling an 8½"x11" file to poster size during printing will usually not work. If you wish to design your poster in something besides PowerPoint (e.g., Illustrator or InDesign) make sure you know how to export to PDF from your software while maintaining acceptable image resolution and proper poster dimensions in the exported PDF. If you do not know how to do this consider following the above suggestion and design your poster in PowerPoint. Note that **PowerPoint sometimes defaults to letter size when exporting to PDF**.

Files should be submitted for printing in **PowerPoint or PDF format**. Name the file so that it is **identifiable to you or your group** – something other than "Conference poster.pptx".

Posters are limited to **36 inches** maximum in their shorter dimension, either portrait or landscape format. The longer dimension is limited only by the length of the paper roll, but lengths longer than 48 inches become difficult to handle and display properly. 24" x 36", 32" x 40" or 36" x 48" are good standard sizes. If you are attending a conference or poster show, find out their poster size requirements from the event coordinator. As previously mentioned, **design your poster at the size you need it printed**.

Don't use typefaces that are not a part of the standard Microsoft Windows installation – no shareware or Google fonts.

No embedded equation objects, Excel files/graphs, Word files, PDF objects, or vector-based (e.g., Solidworks, ProE/Creo) images. Convert these to jpegs before placing into PowerPoint. Avoid transparency effects of any kind within PowerPoint.

**No linked images** – insert them into the file. Avoid huge embedded images; downscale images to a reasonable size and resolution before inserting into PowerPoint. For example, downscale an 18"x24" 1200dpi image to 8"x10" 300dpi.

**No solid color backgrounds and no large blocks of light text on a black or dark background** – they saturate the paper and cause it to ripple and strike the print heads during printing - see below. **We will not print posters with solid color backgrounds.** If you feel that you *must* have one, it will need to be printed elsewhere.

This...

...not this.

**Disordered Silicon Nanowire Arrays for Photovoltaic Applications**  
Student: Hua Bao, Advisor: Xulin Yuan  
School of Mechanical Engineering, Birck Nanotechnology Center, and Energy Center, Purdue University

**Background: Semiconductor Nanowire Solar Cells**

- Efficient carrier collection
- Enhanced Light Absorption

**Light Absorption Mechanisms**

- Small electronic contrast – Reduce Reflection
- Multiple total internal reflection – Light enhancement
- Strong optical scattering – Light enhancement

**Simulation Details**

Theoretical Model: Equipment

Random position, diameter, and length

- Finite difference time domain (FDTD) method
- 100 nm in a 100x100 nm<sup>2</sup> cell
- 1.2 um in length 60-160 nm in diameter
- Average over 8 different configurations
- Normal incidence

**Experimental Setup: Reference Measurements**

Parameters	Method	Reference	Absorbance
Position	FD/0	Similar	Slightly Enhanced
Diameter	FD/0	Linear	Strongly Enhanced
Length	FD/0	Similar for small, similar for large	Strongly Enhanced
Configuration	Experiments	Similar Target	Unclear

**Results for Random Position and Diameter**

- Small reflectance ~ 10% for random NW arrays
- Ordered and random position
- Reflectance peak at 2.25 um
- Absorbance peak at 2.4 um
- Absorption enhancement in random arrays

**Results for Variable Length**

- Absorption enhancement in random arrays
- Absorption enhancement in random arrays

**Summary**

Approximate. This work is partially supported by the New Horizons of Discovery Research through the University Challenge Trust grant. Project will also provide a job for Hua Bao and needs funding for covering the salaries of research group graduate students.

**Nanoscale Thermo-Physical Engineers Laboratory**

**Femto-second Laser Ablation and Plasma Measurement**

PI: Yong C. Shin  
Co-advisee Student: Rui Zhang  
Wenquan He

**Research Motivation**

- Laser Ablation
- Femto-second laser
- Plasma

**Research Objectives**

- Laser Ablation
- Plasma

**Experimental Setup**

**Results**

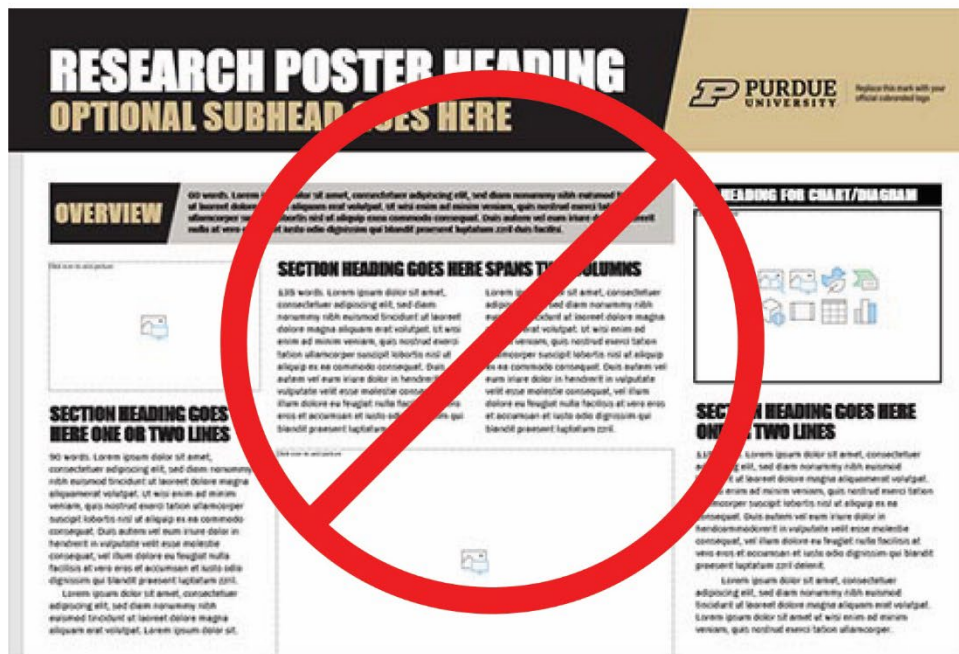
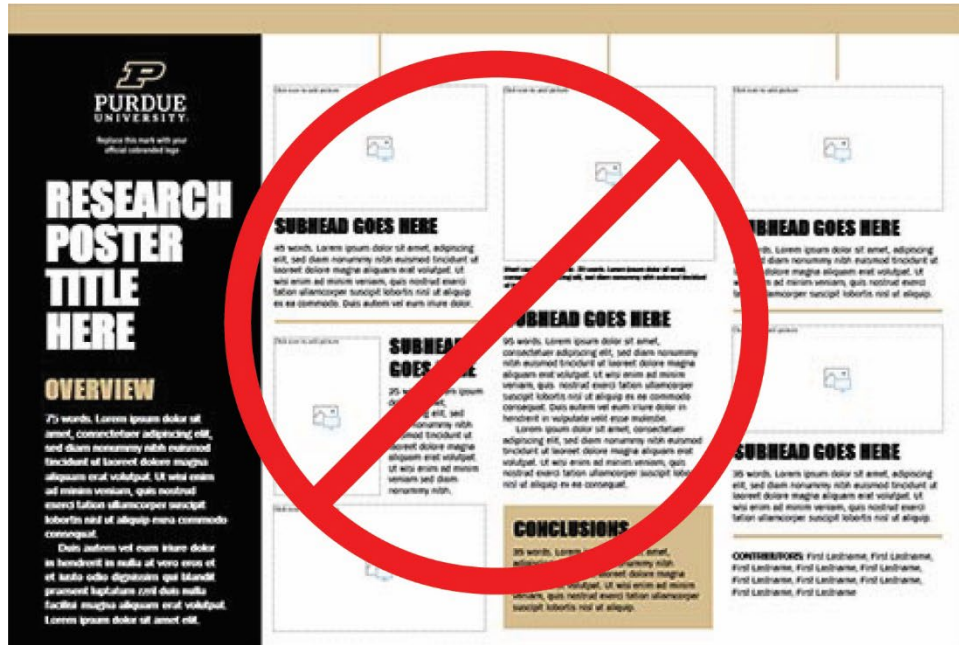
**Summary**

**Purdue University**

# Unprintable Purdue Poster Templates –

The below templates released by Purdue Marketing and Communications are unprintable on our system due to potential printer damage caused by the areas of **white text on a black background** along the top and left side.

Please do not submit posters using these templates – we will not print them.



There are several on-campus alternatives to having your poster printed in ME. Poster printing is available in Discovery Park, WALC, Purdue Libraries, and through the campus Xerox Print Center. Search online for **“Purdue wide format printing”** for details.

If you are traveling to present your poster, consider how you will protect it from damage during transit. Poster tubes, mailing tubes, or drafting tubes are ideal for this and many types are available at the usual online vendors in a variety of styles and prices. They may also be available locally at near-campus bookstores or shipping services like UPS or FedEx.

