

## **PHY431 Honors Project**

Honors credit for PHY431 will be based on a written technical paper describing an assigned topic in optics.

You need to select a topic by November 1.

An outline of your paper is due on November 15.

The paper is due on December 1.

The boundary conditions are:

### **Paper**

Cover page: title, author, and 1 paragraph abstract

Text: length to be 10 - 15 pages: 1.5 line spacing, 1" margins, pagination, citations and bibliography

Attach graphics, tables at end of paper: do not include in body.

Bibliography page: include all resources; must contain at least 2 journal articles

Submission: 1 hard copy and 1 doc, docx or pdf file (email to [cwlai@msu.edu](mailto:cwlai@msu.edu))

### **Grading**

Pass/Fail.

The grade is determined by (1) the depth of research, (2) your understanding of the topic, and (3) overall readability. Although you are encouraged to start by looking up web-based information, your references should be books and journal articles.

You are welcome to swap topics based on your interests (just let me know).

### **Example Topics**

Metamaterials and invisibility

Optical cooling or trapping

Optical lattices (atomic traps)

LIGO LIGO - Laser Interferometer Gravitational Wave Observatory

Adaptive optics

Linear optical quantum computing

Near-field scanning optical microscopy (NSOM)

Confocal microscopy

PillCam video capsule

LASIK or Lasik (laser-assisted in situ keratomileusis)

Keratotomy

EUV lithography

Single molecular spectroscopy