

# Physics 403. Modern Physics Laboratory

*Spring 2026*  
***Eugene V Colla, Josh Long, Irina Burkova***



# Physics 403 Modern Physics Laboratory

## Spring 2026 Teaching Team



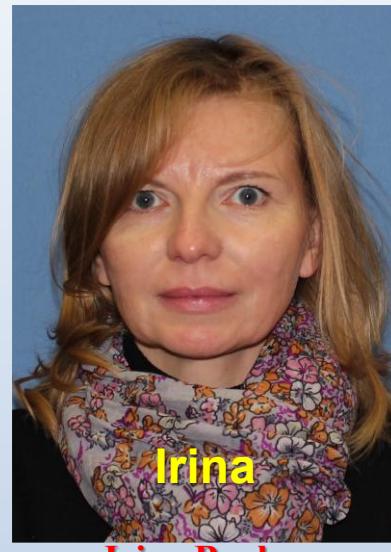
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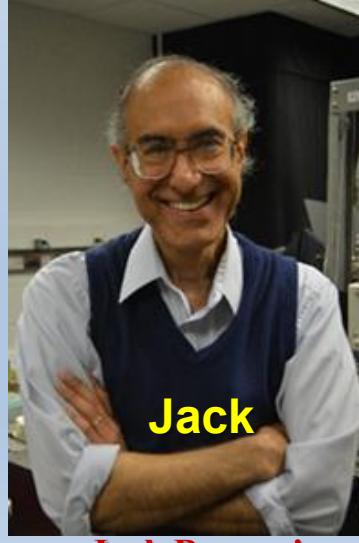
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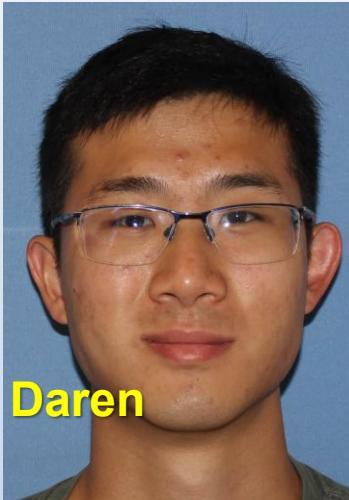
# Physics 403 Modern Physics Laboratory

## Fall 2025 Teaching Team



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# Outline

## I. Goals of the course

## II. Teamwork / grades / expectations from you

## III. Syllabus and schedule

## IV. Your working mode

**In class and “after hours” access**

**Safety, Responsibility**

**Home and away computing**

## V. Take a Lab tour !

## VI. Let's get started

**electronic logbooks**



# Course Goals. Primary goals:

- **Learn how to “do” research**
  - ✓ Each project is a mini-research effort
  - ✓ How are experiments actually carried out ?

The procedures aren't all written out

The questions are not in the back of the chapter

The answers are not in the back of the book

*You will have to learn to guide your own activities*

- ✓ Use of modern tools and modern analysis and data-recording techniques



# Course Goals. Primary goals:

- Learn how to document your work
  - Online - electronic logbook \*
  - Online – saving data and projects in student area on server
  - Using traditional paper logbooks
  - Making an analysis report
  - Writing formal reports
  - Presenting your findings orally



# Course Goals. Secondary goals:

- **Learn some modern physics**
  - Many experiments were once Nobel-prize-worthy efforts
  - They touch on important themes in the development of modern physics
  - Some will provide additional insight to understand advanced courses you have taken
  - Some are just too new to be discussed in textbooks



# The Experiments. Three main groups

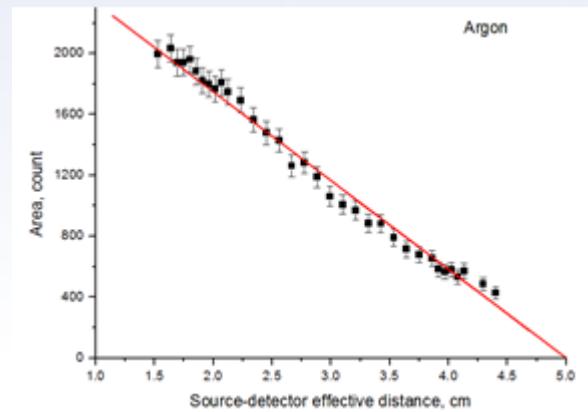
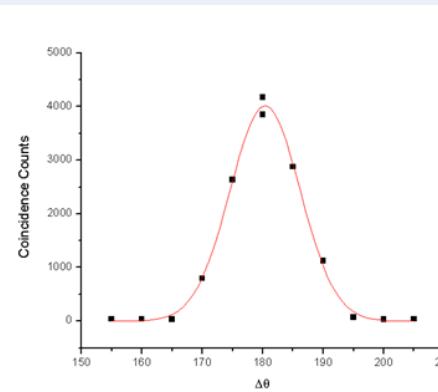
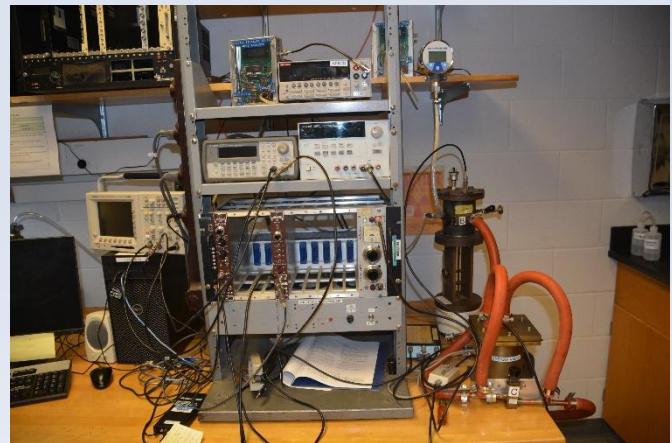
- Nuclear / Particle (NP)
- Atomic / Molecular / Optics (AMO)
- Condensed Matter (CM)

You will do the experiment from all these groups



# The Experiments

- Nuclear / Particle (NP)
  - Alpha particle range in gasses
  - $\gamma$ - $\gamma$  correlation experiment
  - $\gamma$  – spectroscopy
  - Mössbauer spectroscopy



# The Experiments

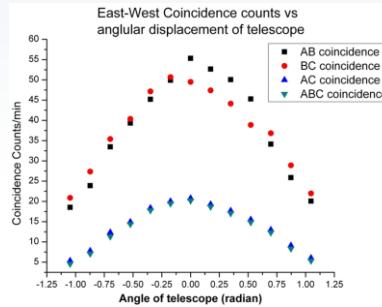
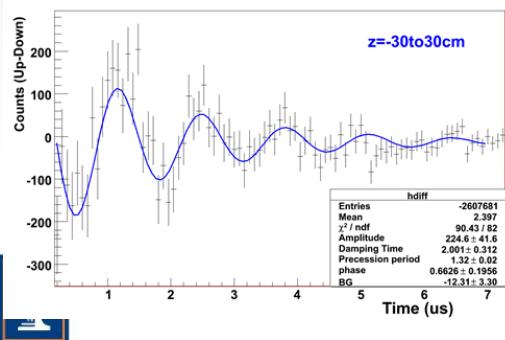
- Nuclear / Particle (NP)

- Cosmic ray muons:

- Lifetime, capture rate, magnetic

- moment

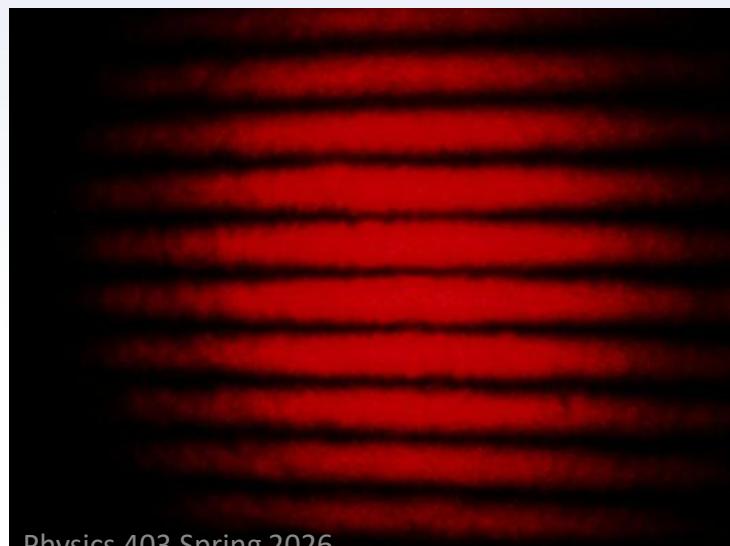
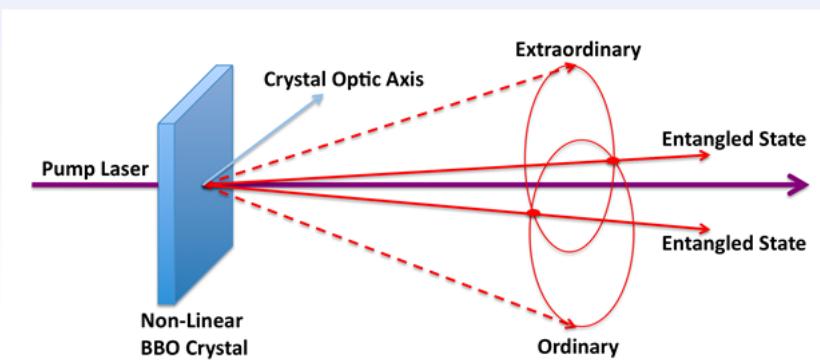
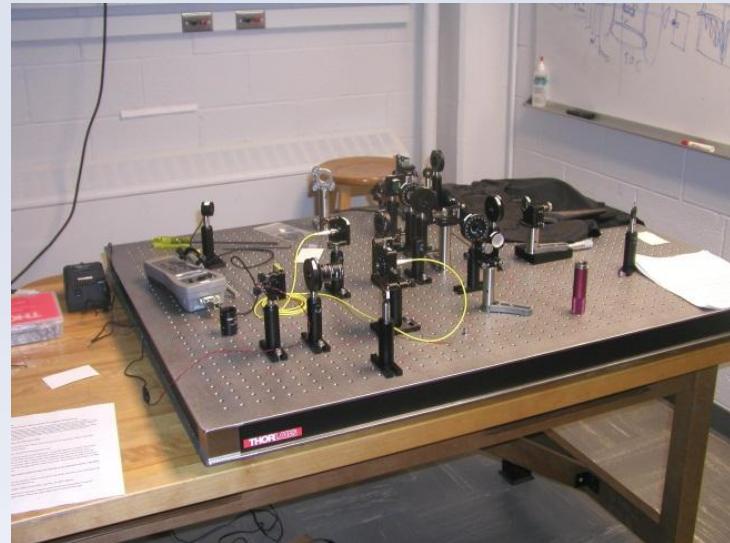
- Angular distribution of cosmic rays
  - Mössbauer spectroscopy



# The Experiments

## Atomic/Molecular/Optics (AMO)

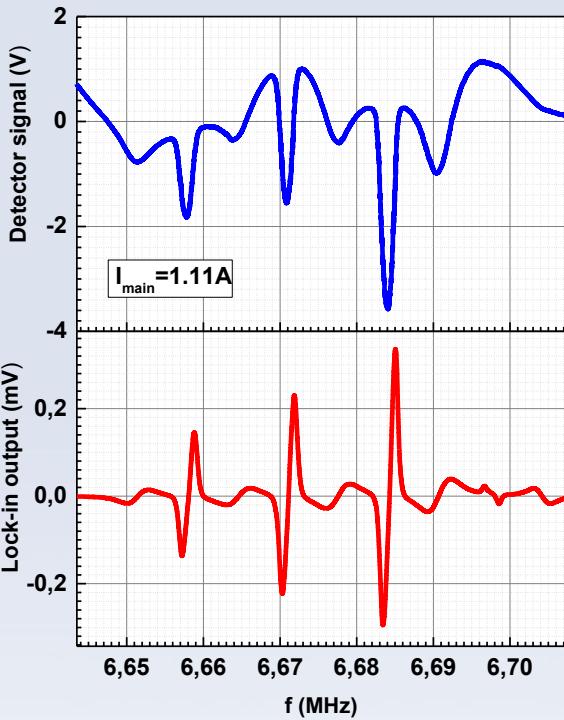
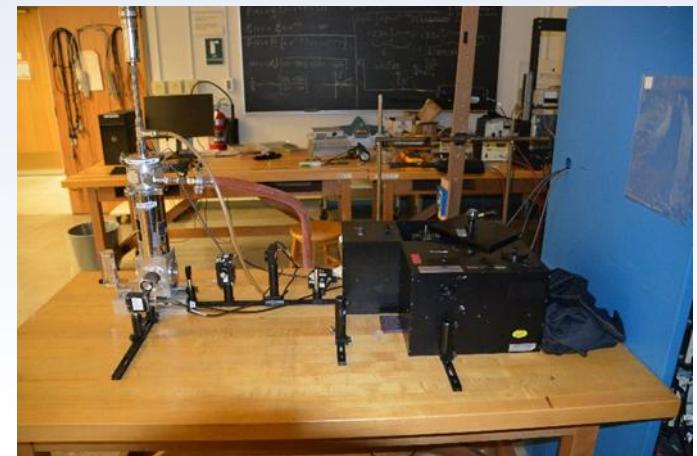
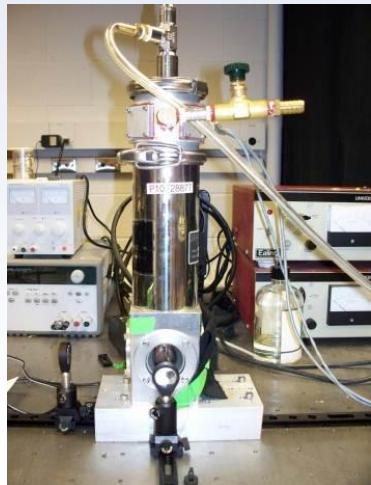
- Quantum Key Distribution
- Quantum erasure
- Quantum Entanglement
- $g(2)$



# The Experiments

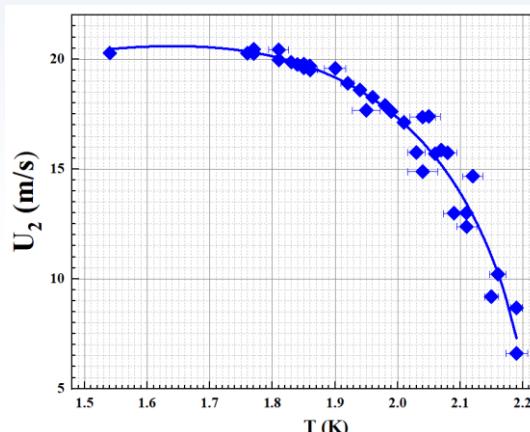
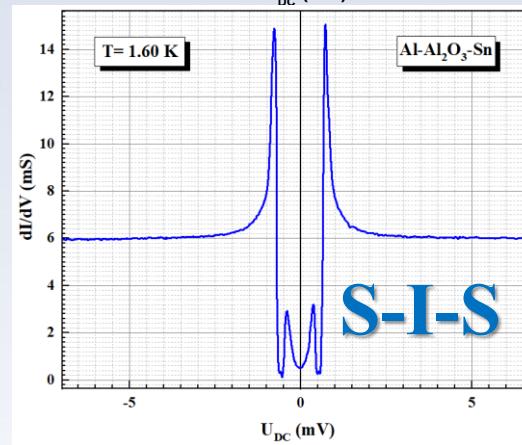
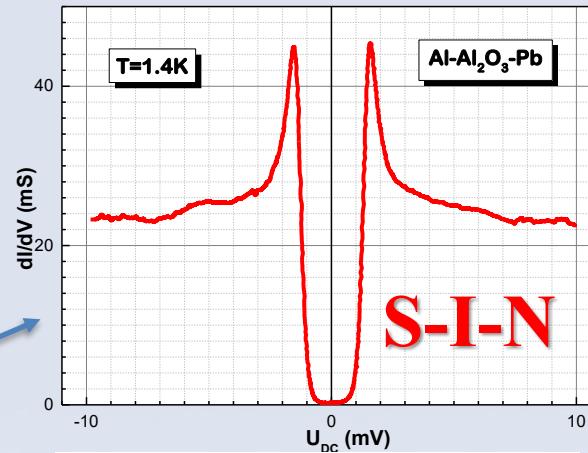
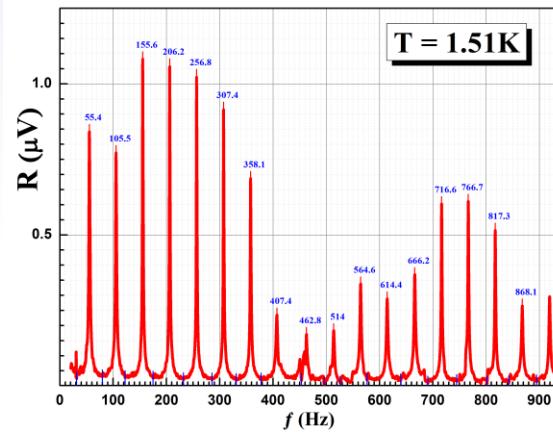
## Atomic/Molecular/Optics (AMO)

- Optical pumping of rubidium gas
- Fluorescence spectroscopy



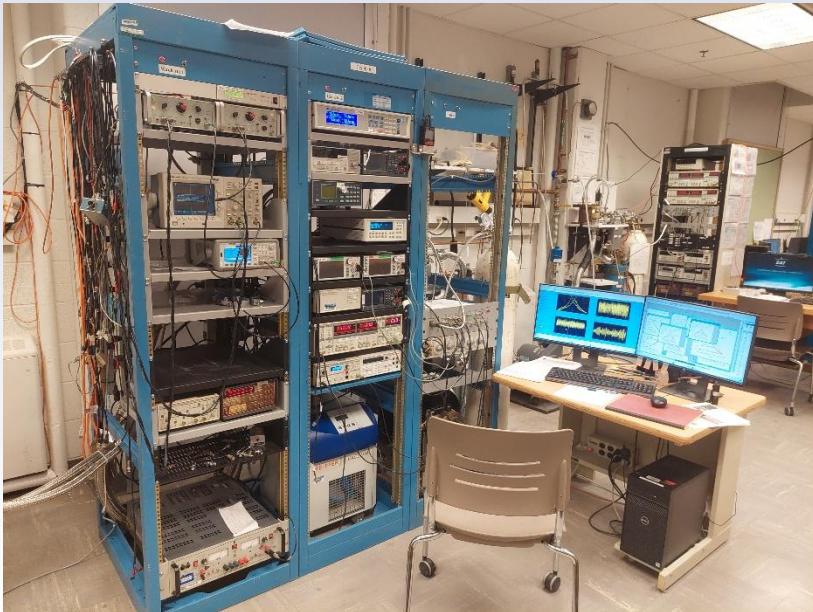
# The Experiments

- Condensed Matter (CM)
  - Tunneling in superconductors
  - 2<sup>nd</sup> sound in <sup>4</sup>He superfluid state

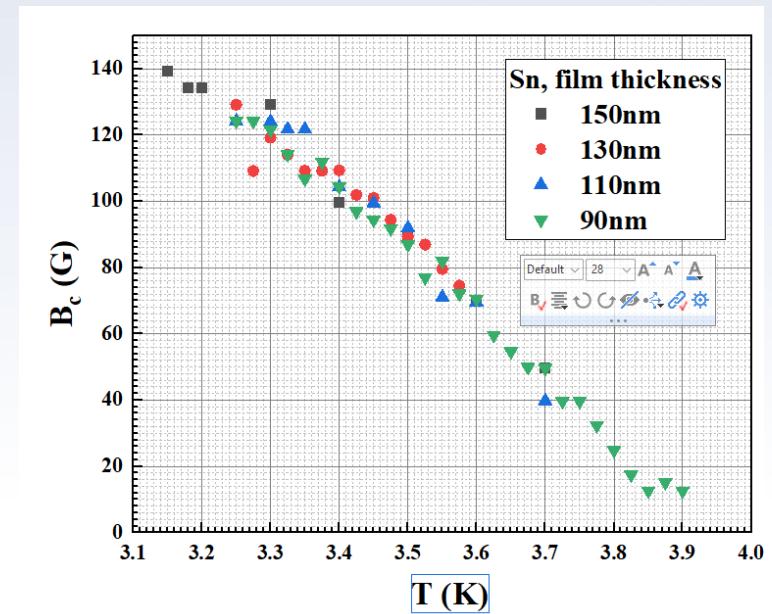
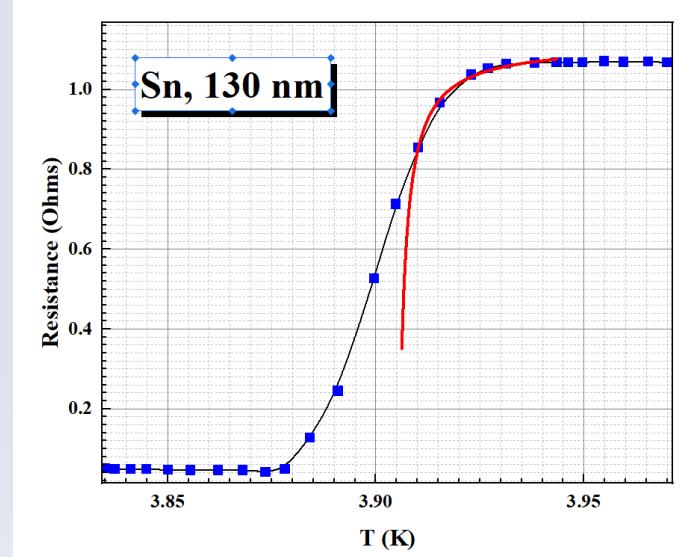


# The Experiments

- Condensed Matter (CM)
  - Superconductivity

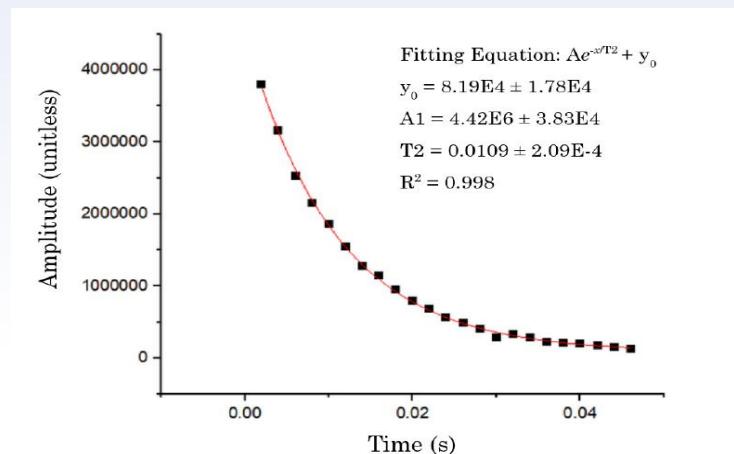
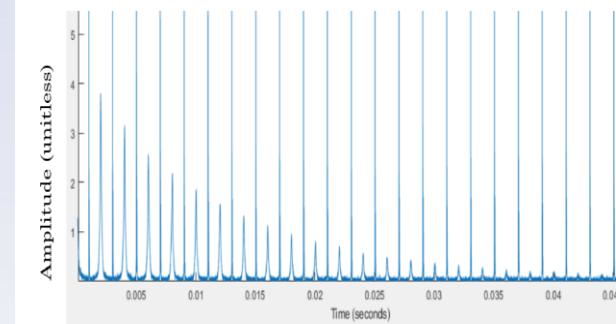
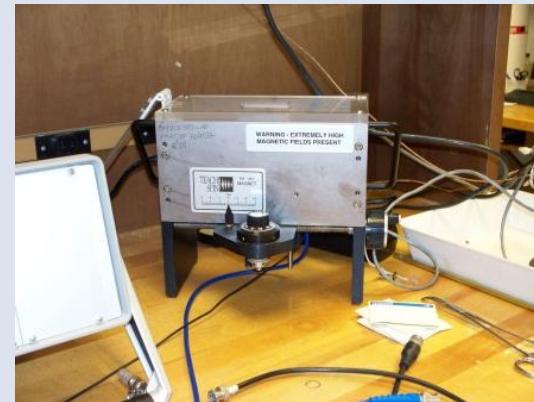


Setup. Close-cycle cryocooling system



# The Experiments

- Condensed Matter (CM)
  - Pulsed NMR

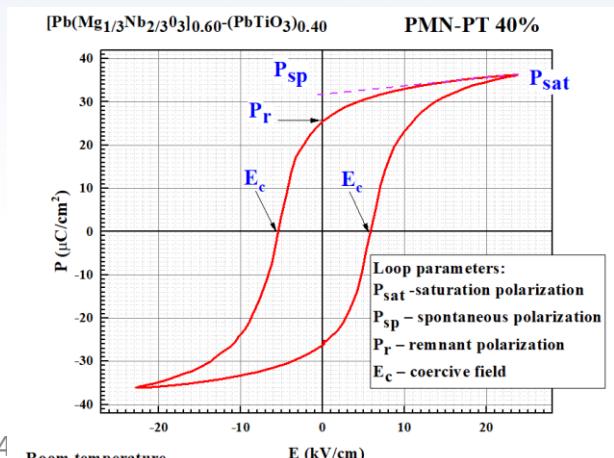
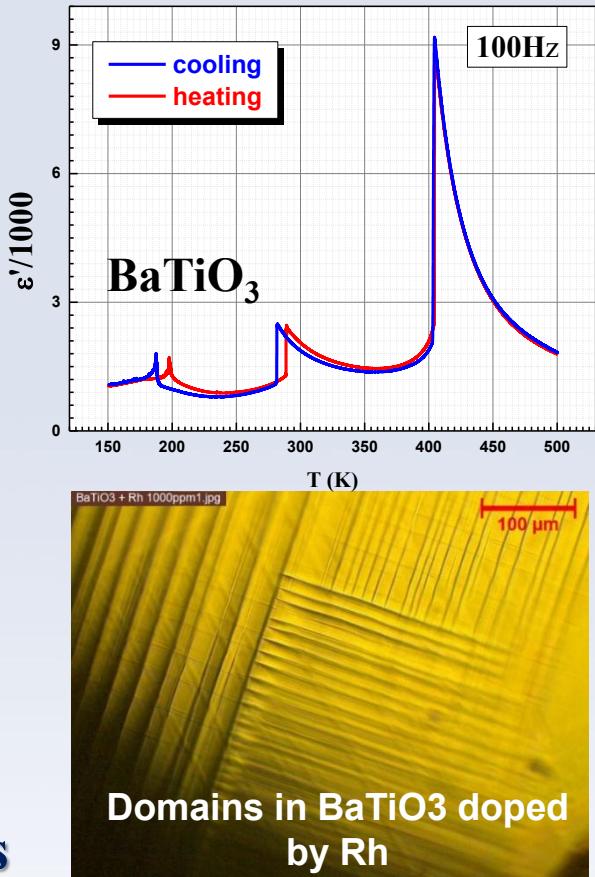
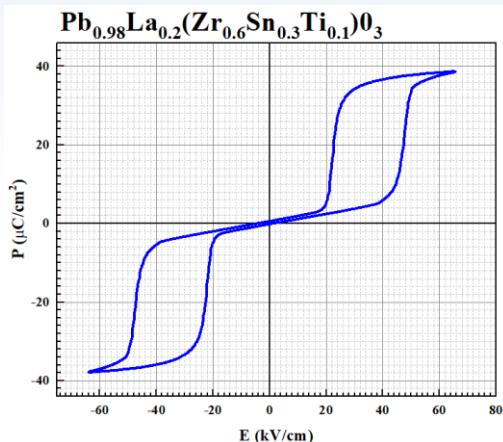


The exponential decay of spin echo amplitudes for 0.1 M  $\text{FeSO}_4$ . From the fitting curve,  $T_2$  is extracted to be 10.9 ms.



# The Experiments

- Condensed Matter (CM)
- Ferroelectrics and ferroelectric phase transition (Ferro1)
- Investigation of the Domain Formation using Polarizing Microscopy (Ferro2)
- Study of the Polarization Properties of Ferroelectric and Antiferroelectric Materials (Ferro3)



# The Experiments

- Condensed Matter (CM)
- Special Tools:
- Atomic Force Microscope
- Polarizing microscope

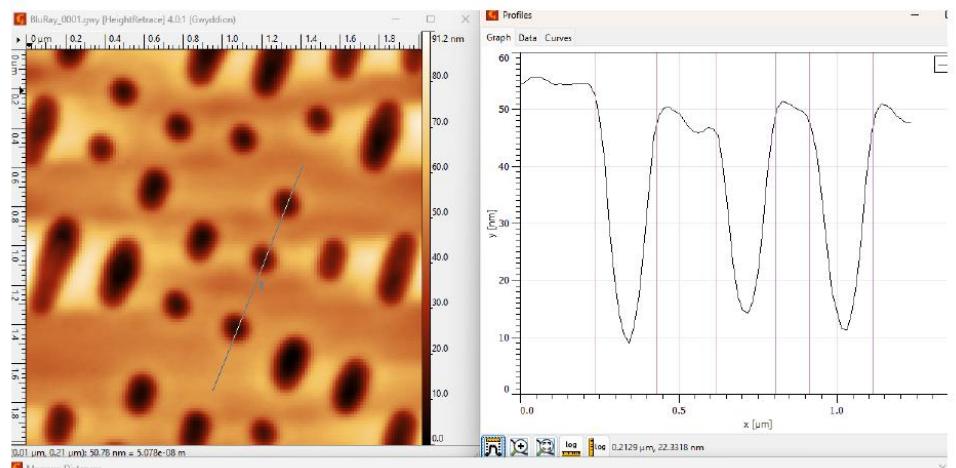


Illustration of trace used for pit length measurement from a Bluray disk sample

Credit to Ye Han, Alex Szymczak (Fa2025)



*Leica DM2700M*



AFM workshop

# The Experiments. Condensed Matter (CM)

## Special Tools:

- Vacuum film deposition



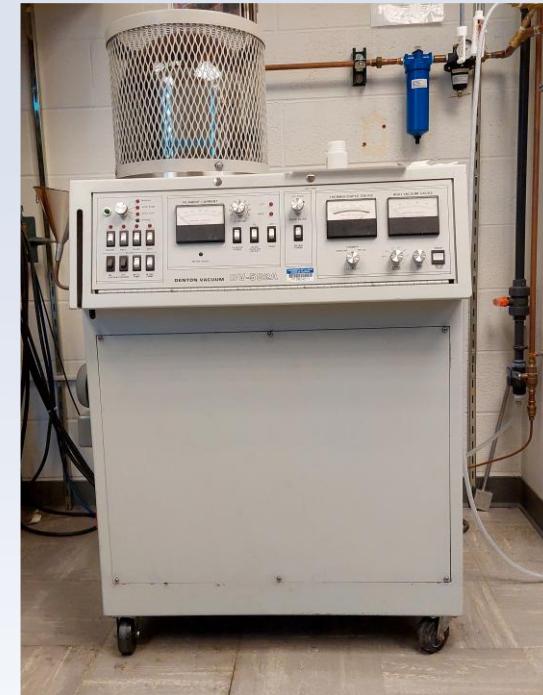
Element  $\pi$  sputtering system

(Al, Cu, V, Nb, Ta,  $\text{Al}_2\text{O}_3$ ,  $\text{BaTiO}_3$  etc.)



“Home made”  
thermal evaporator

(Al, Cu, Pb, Sn, Ag, Cr, In etc.)

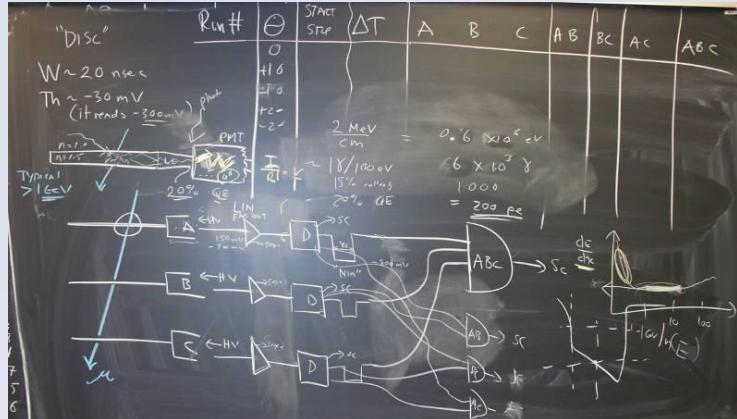


Denton DV-502A  
Film deposition system

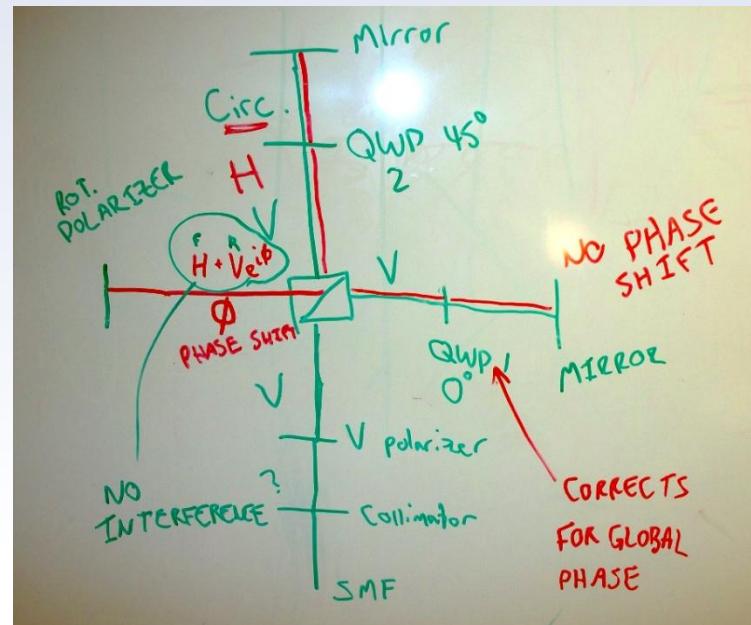


# The “manuals”

- Many are just guides
- An only few purchased experiments have “real” manuals
- We serve as your guides ... like real research



## OPTICAL PUMPING OF RUBIDIUM OP1-A



# The “manuals”

For most of the P403 experiments we have prepared the folders containing the most important materials related to the experiment. These folders are located on the shelves in ESB5105. You can borrow the folders until working on experiment and on the report.



Most stuff collected in binders can be found in our P403 server:

Name	Date modified	Type
Alpha Range	6/21/2022 11:46 AM	File folder
Ferro1	11/20/2025 1:49 PM	File folder
Ferro2	9/22/2020 2:41 PM	File folder
Ferro3	11/11/2025 4:53 PM	File folder
Fluorescence	8/4/2025 10:54 AM	File folder
gamma spectroscopy	1/9/2023 3:15 PM	File folder
gamma-gamma	7/15/2020 3:39 PM	File folder



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  - electronic logbooks
  - digital scopes



# Grading: Distribution of “740” points

ASSIGNMENT	Points
<b>Expt. documentation</b> : elog reports, shift summaries, plot quality; paper logbooks	<b>120 Total</b> 60 / cycle
<b>Formal reports</b> : physics case, quality of results, depth of analysis, conclusions	<b>400 Total</b> 100 / report
<b>1<sup>st</sup> Oral report</b> : motivation, organization of presentation; fielding questions	<b>100 Total</b>
<b>Final Oral Presentation</b> $\equiv$ <b>Final Exam</b>	<b>120</b>
Total	<b>740</b>
<b>Effective point total will be</b>	

The grading scale will be a percentage out of “740” :

Letter grading scale is approximately **97% = A+**, **93% = A**, **90% = A-**, **87% = B+**, **83% = B**, **80% = B-**, etc

You can **RESUBMIT one lab report to improve your grade**  
**(deadline for resubmissions and for report #4 May 8<sup>th</sup> 2026)**



# Resubmission

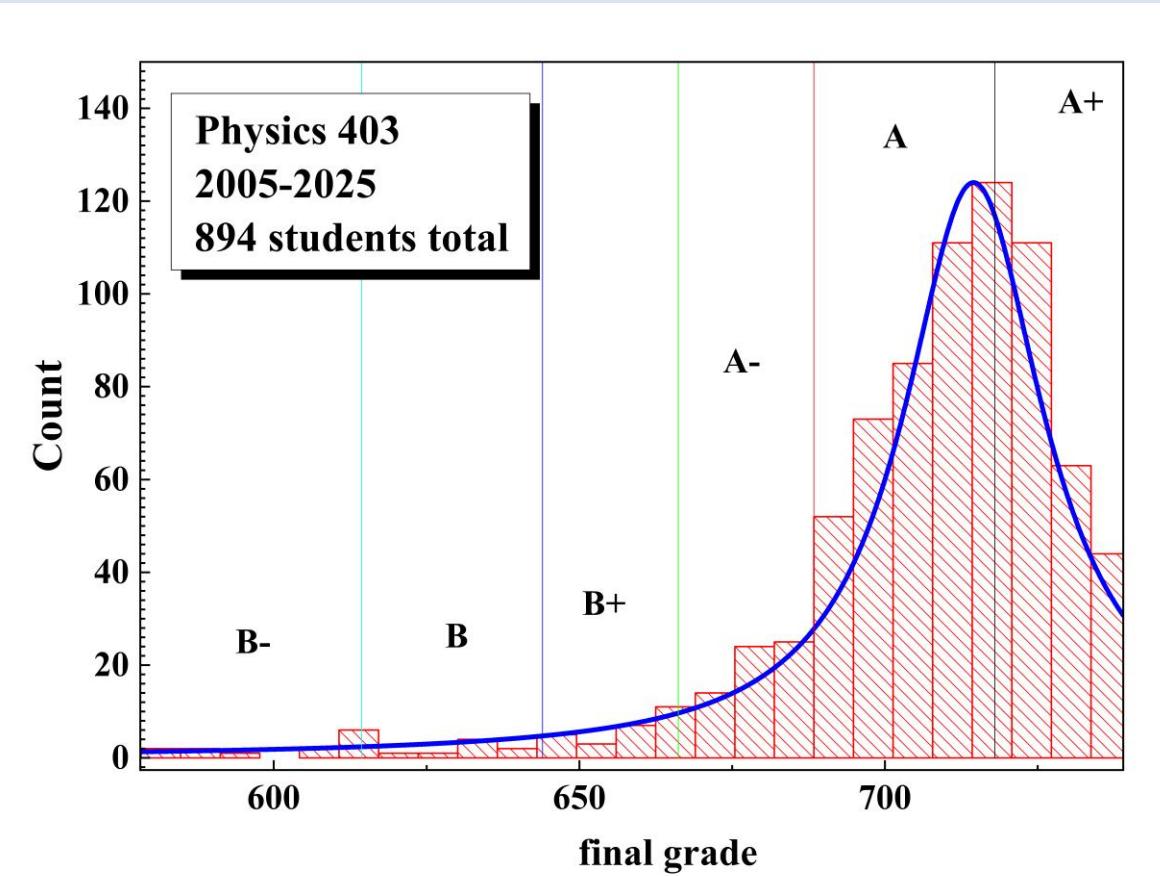
You can **RESUBMIT** one lab report to improve your grade  
(deadline for resubmissions and for report #4 **December 12<sup>th</sup> 2024**)

## ***The general rules for resubmission:***

1. Original report should be submitted in time with no using of the late ticket
2. The original report should be a real report but not only the title page
3. We do not recommend to resubmit the report if the original grade was over 90 points



# Grading: a piece of history and analysis of the results



# Submission of Lab-Reports

- Due dates as on syllabus at midnight
- The reports should be uploaded to the server:
- <https://my.physics.illinois.edu/courses/upload/>
- Accepted MS-Word or PDF
- For orals – MS-PowerPoint\* or PDF

*\* preferable*



# Absences

- If you are sick, let Eugene know by email ([kolla@Illinois.edu](mailto:kolla@Illinois.edu)).  
Don't come in and get others sick. We are working side-by-side  
in a close environment for many hours.
- You can “make up” the time with arrangements and you can  
have access to the rooms. We will be accommodating.



# Absences. Excuse Policy.

- You can be excused from **only one** missed assignment, and only if you provide medical documentation.
- If the excused you have **missed the oral presentation** (oral #1), you have to discuss this with us, and we will arrange the date for your oral talk.
- The Final Oral **cannot be excused**, as it is equivalent to a final exam. You **cannot pass the course without credit for this assignment** (see Student Code)

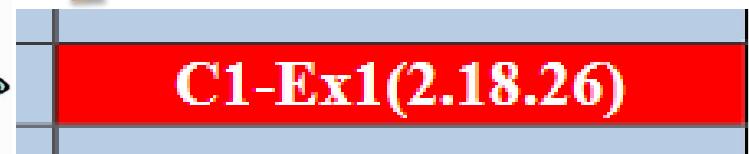
1. Student Code: <https://studentcode.illinois.edu/article1/part5/1-501/>
2. Ibid: <https://studentcode.illinois.edu/article3/part2/3-201/>



# Late Reports

- **Policy for late reports**

- You can have **ONE “late ticket”** for a “free” delay of up to **3 business days**, but you must tell us you are using the ticket
- Reports are due at midnight on the date shown on the syllabus. After that we will charge:
  - 5 points for up to 1 week late. 10 points for up to 2 weeks late.
  - After that, it's too late.



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# Syllabus

## Cycles

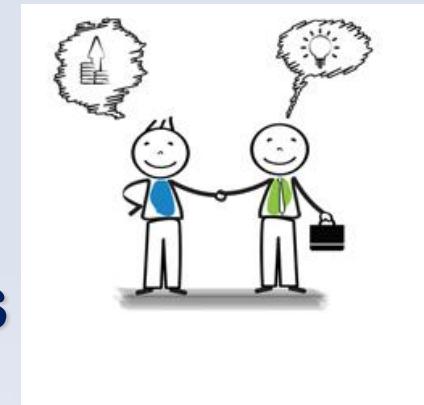
	Date	Day	Activity	Comment	Note
1	1/20	Tues	Orientation	About Phy403	
2	1/22	Thurs	Cycle 1-1		
3	1/27	Tues	Cycle 1-2	OriginPro Intro/Root	
4	1/29	Thurs	Cycle 1-3	Elog Comments	
5	2/03	Tues	Cycle 1-4	Error analysis	
6	2/05	Thurs	Cycle 1-5		
7	2/10	Tues	Cycle 1-6	Written Reports	
8	2/12	Thurs	Cycle 1-7		
9	2/17	Tues	Cycle 1-8	Ferroelectricity	C1-Ex1(2.18.26)
10	2/19	Thurs	Cycle 1-9		
11	2/24	Tues	Cycle 1-10	Optical spectroscopy	
12	2/26	Thurs	Cycle 1-11		
13	3/03	Tues	Cycle 1-12	Oral Reports/Talks	
14	3/05	Thurs	Cycle 2-1		
15	3/10	Tues		ORALS 1	
16	3/12	Thurs			
				Spring Break	
17	3/24	Tues	Cycle 2-2	Lock-in Amps and FT	C1-Ex2 (3.25.26)
18	3/26	Thurs	Cycle 2-3		
19	3/31	Tues	Cycle 2-4	AFM	
20	4/02	Thurs	Cycle 2-5		
21	4/07	Tues	Cycle 2-6	Entanglement	
22	4/09	Thurs	Cycle 2-7		
23	4/14	Tues	Cycle 2-8	High Energy Physics	
24	4/16	Thurs	Cycle 2-9		C2-Ex1 (4.15.26)
25	4/21	Tues	Cycle 2-10	Superconductivity	
26	4/23	Thurs	Cycle 3-11	Final Talks Preparation	
27	4/28	Tues	Cycle 3-12	Cosmology	
28	4/30	Thurs		Final Orals #1	
29	5/05	Tues		Final Orals #2	C2-Ex2 (5.08.26)
	5/07	Thurs		READING DAY	



# Assignment of experiments

2 cycles with 2 experiments

→ working with different partners



→ joint team reports and elogs but oral

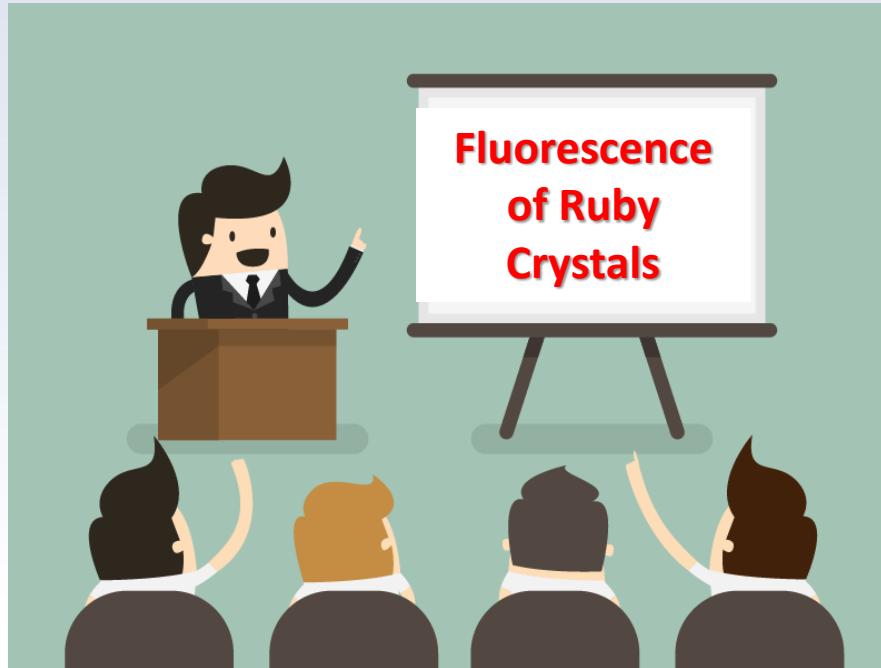
presentations will be done by each

student personally



# Fall 2021    Orals    Physics 403

After 2 experiments (1 cycle) we will have oral session. The topic of the presentation will be chosen from the experiments done in this cycle.



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  - Home and away computing
- V. Take a Lab tour !
- VI. Let’s get started
  - electronic logbooks
  - digital scopes



# Lab Access



**Use Your ID Card to Access the Lab**

**You can access the Lab not only on “Lab days”**

**Late time rules:**

**You can stay in the Lab until 8pm but need to  
work with partner**

**After 8pm and on weekend days – *you have to discuss  
this schedule with your instructor* and in general it is  
preferable to avoid working after 8 pm and on week**



# Safety is your responsibility !

**Hazards:** *high voltage, radioactive sources, cryogens, chemical materials, high pressure*

## **In class work and “after hours” access & work requires responsible conduct with regards to**

## **(I) safety/hazards and with**

## **(II) equipment**

**Discuss potential hazards at the beginning of each experiment with an instructor or TA**

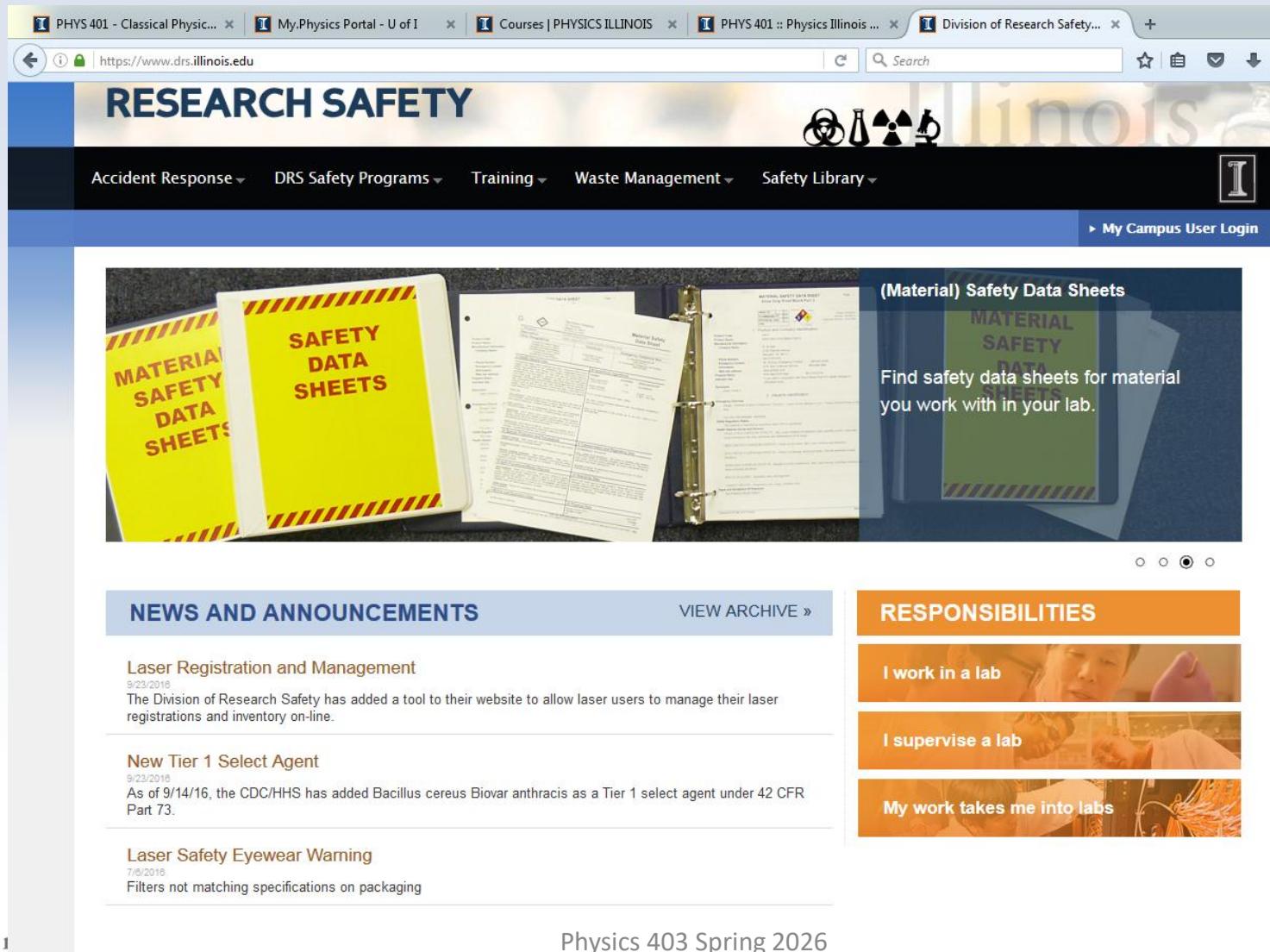
## When in doubt stop and ask

**Problems after hours:** **217 493 1576 (Eugene's cell)**  
**302 521 2979 (Gina's cell)**



# Follow Directly the Recommendations of Safety Working

<https://www.drs.illinois.edu/>



The screenshot shows the homepage of the Research Safety website. The header features a navigation bar with links to Accident Response, DRS Safety Programs, Training, Waste Management, Safety Library, and My Campus User Login. The main content area includes a banner for Material Safety Data Sheets, a news section with articles about laser registration, new tier 1 select agents, and laser safety eyewear, and a responsibilities section with three categories: I work in a lab, I supervise a lab, and My work takes me into labs.

**RESEARCH SAFETY**

Accident Response ▾ DRS Safety Programs ▾ Training ▾ Waste Management ▾ Safety Library ▾

My Campus User Login

**(Material) Safety Data Sheets**

Find safety data sheets for material you work with in your lab.

**NEWS AND ANNOUNCEMENTS**

**Laser Registration and Management**  
9/23/2016  
The Division of Research Safety has added a tool to their website to allow laser users to manage their laser registrations and inventory on-line.

**New Tier 1 Select Agent**  
9/23/2016  
As of 9/14/16, the CDC/HHS has added *Bacillus cereus* Biovar *anthracis* as a Tier 1 select agent under 42 CFR Part 73.

**Laser Safety Eyewear Warning**  
7/6/2016  
Filters not matching specifications on packaging

**VIEW ARCHIVE »**

**RESPONSIBILITIES**

I work in a lab

I supervise a lab

My work takes me into labs

# Follow Directly the Recommendations of Safety Working

Related Units @ Illinois Questions?

## Division of RESEARCH SAFETY



Accident Response ▾ DRS Safety Programs ▾ Training ▾ Waste Management ▾ Safety Library ▾

### Chemical Waste Collection and Storage

Before generating chemical waste, the researcher should determine how it will be collected and stored and obtain the necessary equipment (containers, labels) in advance. The choice of procedures depends on the type of waste and its final disposition. This section explains how to determine the final disposition of waste, select the appropriate waste container, and store waste in the lab or work area. It also suggests waste minimization strategies.

#### Determining How to Dispose of a Chemical Waste

The final disposition of a chemical waste is determined by the answers to a series of questions:

Step 1. Is the waste **Contaminated Debris** (glassware, paper towels, clean-up materials), or is it a chemical or chemical mixture?  
**If it is contaminated debris:** Go to Step 5.  
**If it is a chemical or chemical mixture:** Go to Step 2.

Step 2. Is the chemical a DEA (Drug Enforcement Agency) controlled substance? (Refer to the [DEA list controlled substances](#).)  
**Yes:** Refer to the [DEA Controlled Substances Guide](#) for disposal procedures.  
**No:** Go to Step 3.

Step 3. Is the chemical a solid (not liquid or gas)?  
**Yes:** Collect and store the waste as described in the waste container and storage guidelines listed below and dispose of it through the Division of Research Safety (DRS) chemical waste disposal program. See the section [Procedures for Requesting Chemical Waste Disposal](#) for the disposal procedures. (No solid chemical waste, hazardous or non-hazardous, should be placed in the regular trash.)  
**No:** Go to Step 4.

Step 4. Is the chemical a liquid non-hazardous waste as listed in the section [Liquid Non-Hazardous Chemical Waste Disposal](#)?  
**Yes:** The chemical may be poured down the sanitary sewer (sink drain) with copious amounts of water.  
**No:** Collect and store the waste as described in the waste container and storage guidelines listed below, and dispose of it through the DRS chemical waste disposal program. See the section [Procedures for Requesting Chemical Waste Disposal](#) for the disposal procedures.

Step 5. Is the contaminated debris laboratory glassware (broken and unbroken)?  
**Yes:** See the [Laboratory Glassware Waste Disposal](#) section.  
**No:** Go to Step 6.

Step 6. Is the debris contaminated with a substance listed in the section [Liquid Non-Hazardous Chemical Waste Disposal](#)?  
**Yes:** The contaminated debris can be disposed of in the regular trash.  
**No:** Collect and store the contaminated debris as described in the waste container and storage guidelines listed below: dispose



**Waste container for ethanol, acetone, methanol, isopropanol.**

**Waste container for mineral spirits.**



**Waste containers for chemicals used in NMR experiment**

# Follow Directly the Recommendations of Safety Working

Related Units @ Illinois Questions? Search Go

Division of RESEARCH SAFETY

Accident Response ▾ DRS Safety Programs ▾ Training ▾ Waste Management ▾ Safety Library ▾

Profile ▾ Eugene V Colla ▾ Log off



## Laboratory Sharps

### Definition

Materials that qualify as “sharps” are defined at the state level and shall be disposed of as Potentially Infectious Medical Waste (PIMW).

In Illinois, the Illinois Environmental Protection Agency (IEPA) has designated the following material (used or unused) as sharps:

- Any medical needles,
- Syringe barrels (with or without needle),
- Pasteur pipettes (glass),
- Scalpel and razor blades,
- Blood vials,
- Microscope slides and coverslips,
- Glassware contaminated with infectious agents.

### NEVER dispose of these items in SDCs:

- Plastic items (except for syringes),
- Beverage containers (no pop cans!),
- Non-biologically contaminated laboratory glassware,
- Solvent/chemical bottles,
- Light bulbs,
- Any paper materials,
- Pipette tips,
- Plastic pipettes,
- Aerosol cans or cans of any type,
- Scintillation vials,
- Any item with liquid (except for blood in vacutainer tubes).



Waste  
container for  
sharps



# Outline



**V. Take a Lab tour !**

**VI. Let's get started**  
**electronic logbooks**  
**digital scopes**



# Outline

- I. Goals of the course
- II. Teamwork / grades / expectations from you
- III. Syllabus and schedule
- IV. Your working mode
  - In class and “after hours” access
  - Safety, Responsibility
  - Home and away computing
- V. Take a Lab tour !
- VI. Let’s get started**
  - electronic logbooks
  - digital scopes



# How to record the data

- Work together
- Write down the **equipment** used
- Make a **diagram** of the setup
- Note the **settings** of dials, switches, gauges
- Take a digital photo if appropriate
- Use a software drawing program to make a detailed sketch



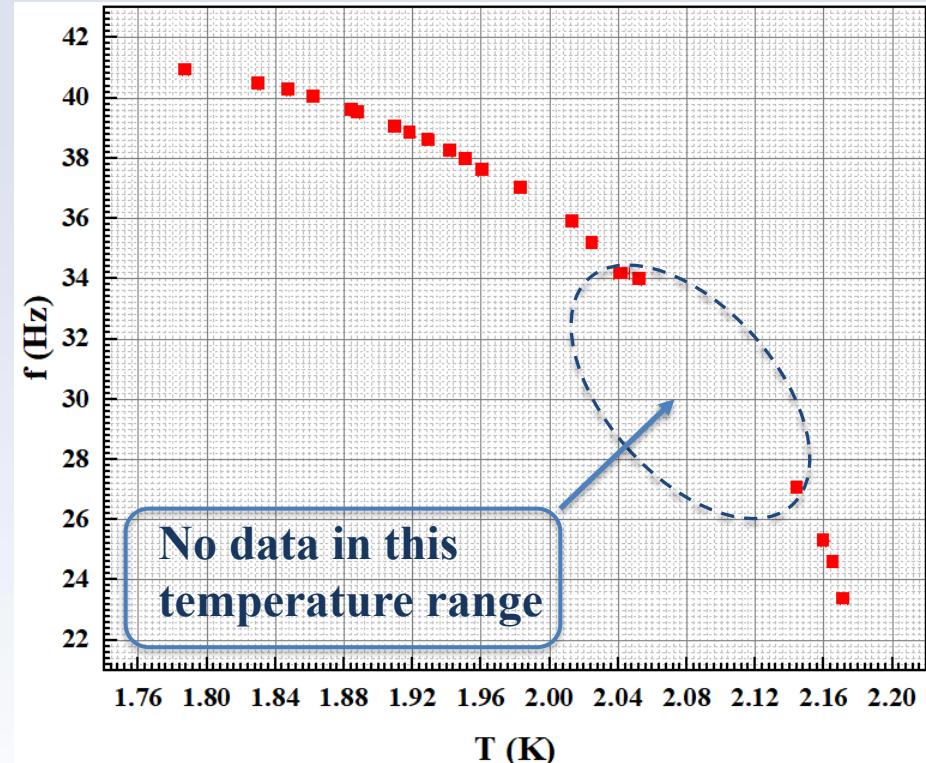
# How to record the data

- Use the eLog (see next).
- Write down what you did in real sentences.
- Provide enough detail that you can reconstruct later what you did!
- How will you look at the data later?
- Do you have enough information?
- Did the equipment perform as expected?



# How to record the data

- Many experiments require you to “change and measure” something by hand
  - Make a table in a paper logbook or put the data directly into electronic worksheet (*preferable*).
  - Make a “quick sketch” of your by plotting the data using OriginPro or other software

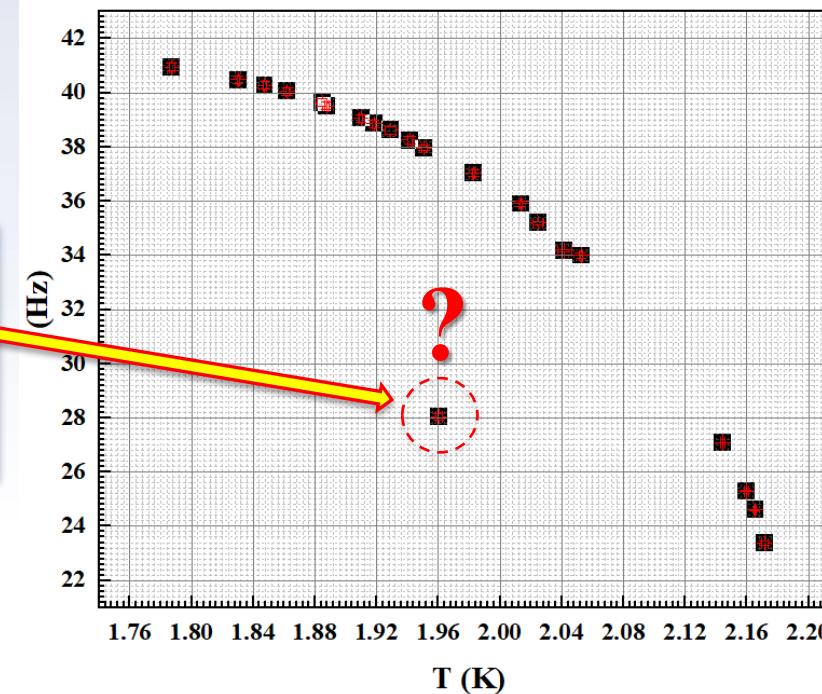


# How to record the data

Looking on the graph, you can answer the questions:

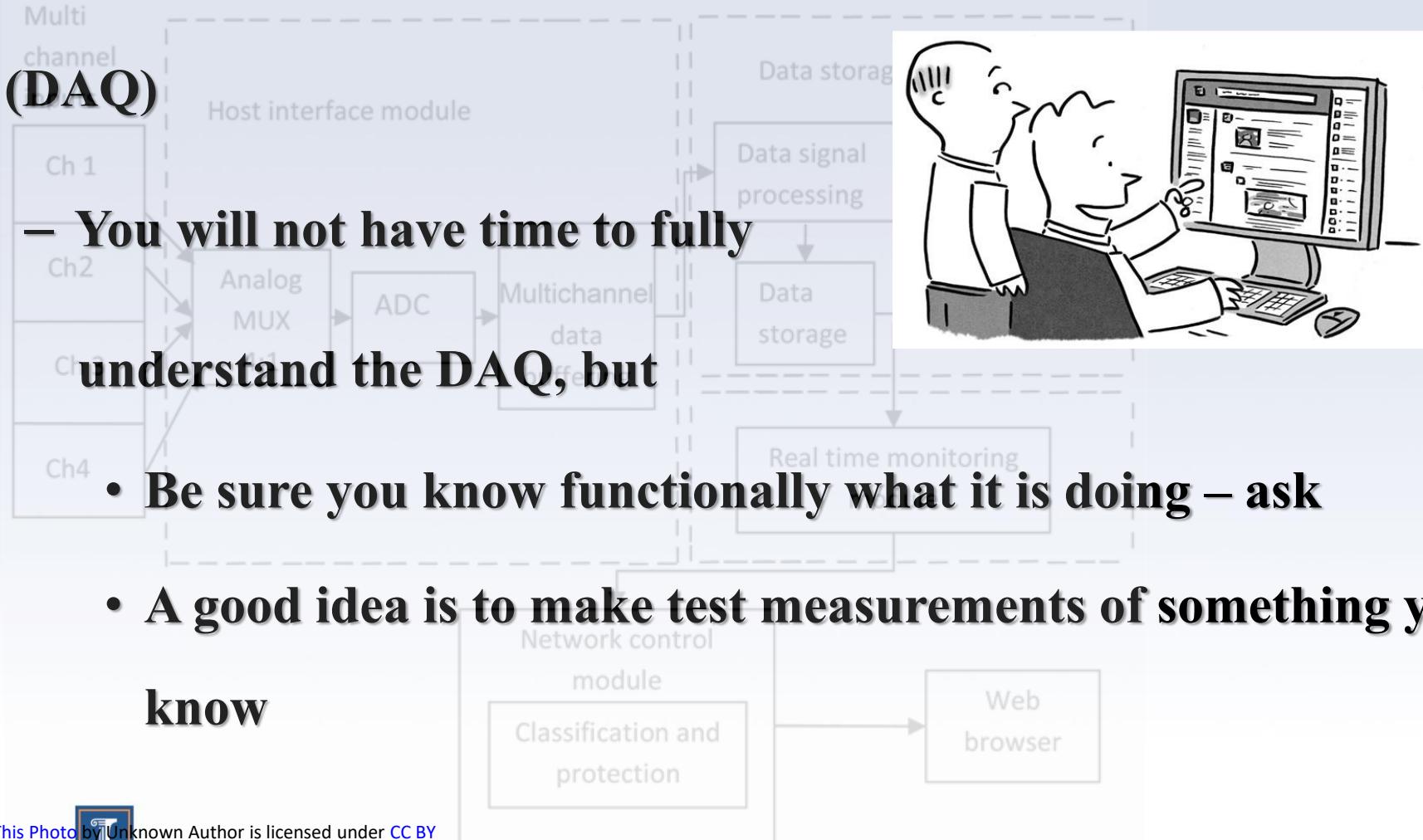
- Do you have enough points?
- Do you have any obvious anomalies?
- You can repeat points but do not throw them out. Use other measurements to check reliability

New physics?  
Wrong analysis?  
Equipment Problem?



# How to record the data

- Many experiments have built-in, computer-based data acquisition



[This Photo](#) by Unknown Author is licensed under [CC BY](#)



# Where to exchange, store and retrieve course information.

## P403 Lab server

<\\engr-file-03.engr.illinois.edu\PHYINST\APL Courses\PHYCS403>



# Connecting to the PHYS403 server

**Connect to VPN following the instructions on the UIUC VPN website:**

<https://techservices.illinois.edu/services/virtual-private-networking-vpn/download-and-set-up-the-vpn-client>

**To connect to the PHYS403 Server:**

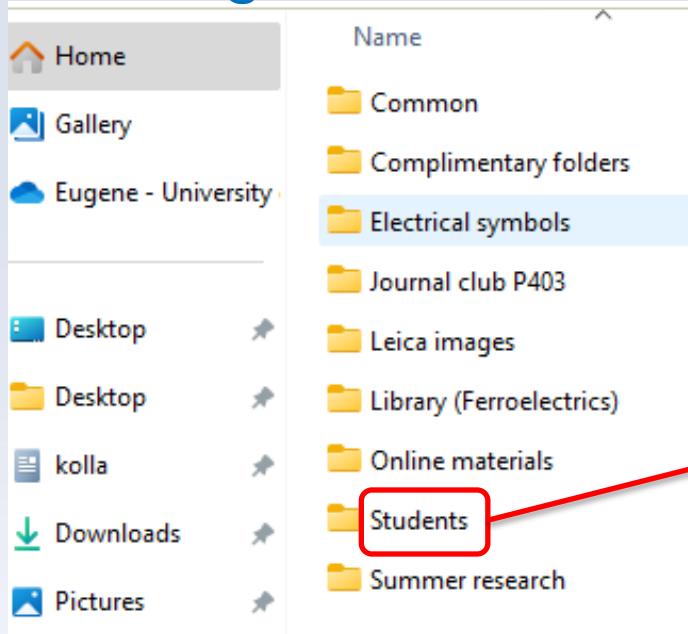
- **Connect to the VPN first, then enter the following as the share to connect to:**
  - **Mac users:** Open Finder: Go: Connect to Server, type in address:  
smb://enr-file-03.enr.illinois.edu/PHYINST/APL Courses/PHYCS403
  - **Windows users:** Open Windows Explorer, type in address:  
<\\enr-file-03.enr.illinois.edu\PHYINST\APL Courses\PHYCS403>
- **When prompted for username and password, enter:**  
“UofI\[your netID]” and “[your netID password]”



# Where to exchange, store and retrieve course information.

## (i) Your data, projects, tables etc

\enr-file-03\PHYINST\APL Courses\PHYCS403



Each student has a folder

Name	Date modified
1. Final talk abstract	11/27/2012 11:53 AM
2. Elogs links template	6/19/2012 10:45 AM
Student #1	7/24/2012 10:45 AM
Student #2	7/17/2012 10:45 AM
Student #3	7/9/2012 10:45 AM

Store all experiment related materials in corresponding folder

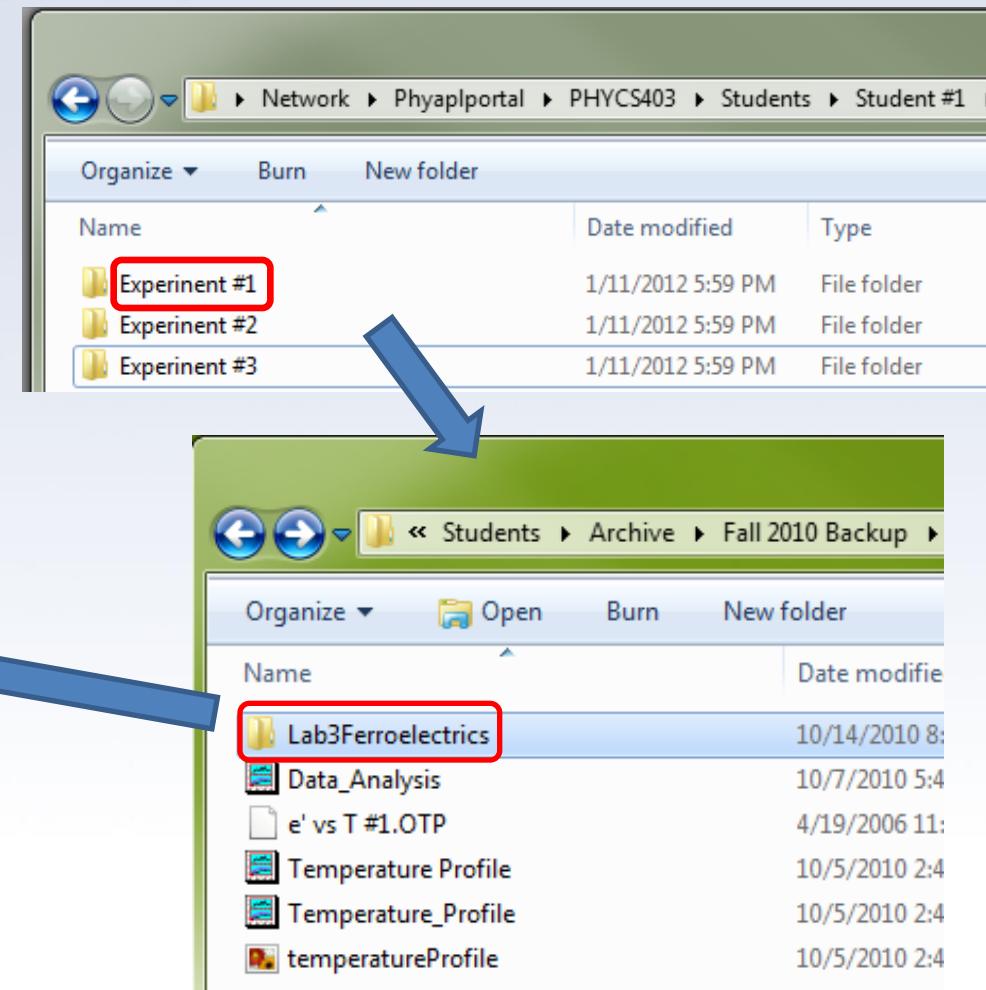
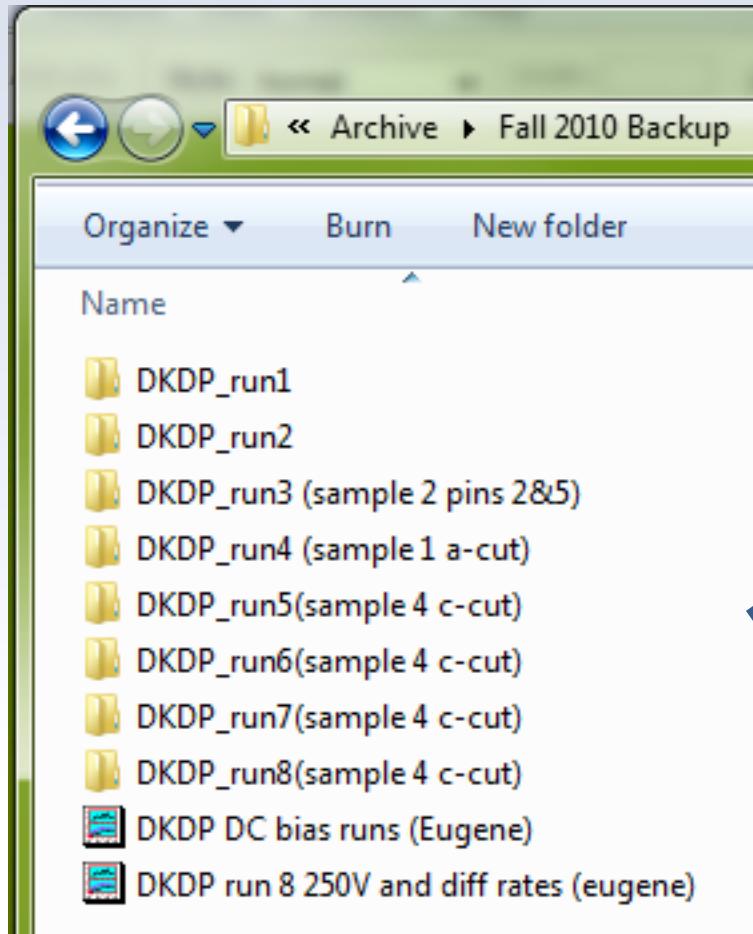
A screenshot of a Windows file explorer window showing the contents of the 'Student #1' folder. The path is: Network > Phyaplportal > PHYCS403 > Students > Student #1. The main pane shows a list of three subfolders: 'Experiment #1', 'Experiment #2', and 'Experiment #3'. The 'Experiment #2' folder is highlighted with a red box. The 'Name' column is sorted by folder name.

Name	Date modified	Type
Experiment #1	1/11/2012 5:59 PM	File folder
Experiment #2	1/11/2012 5:59 PM	File folder
Experiment #3	1/11/2012 5:59 PM	File folder



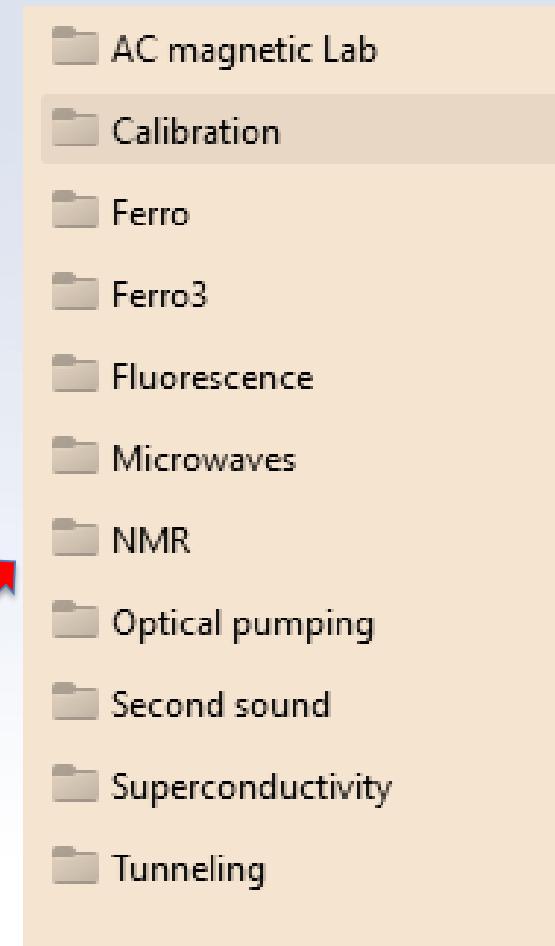
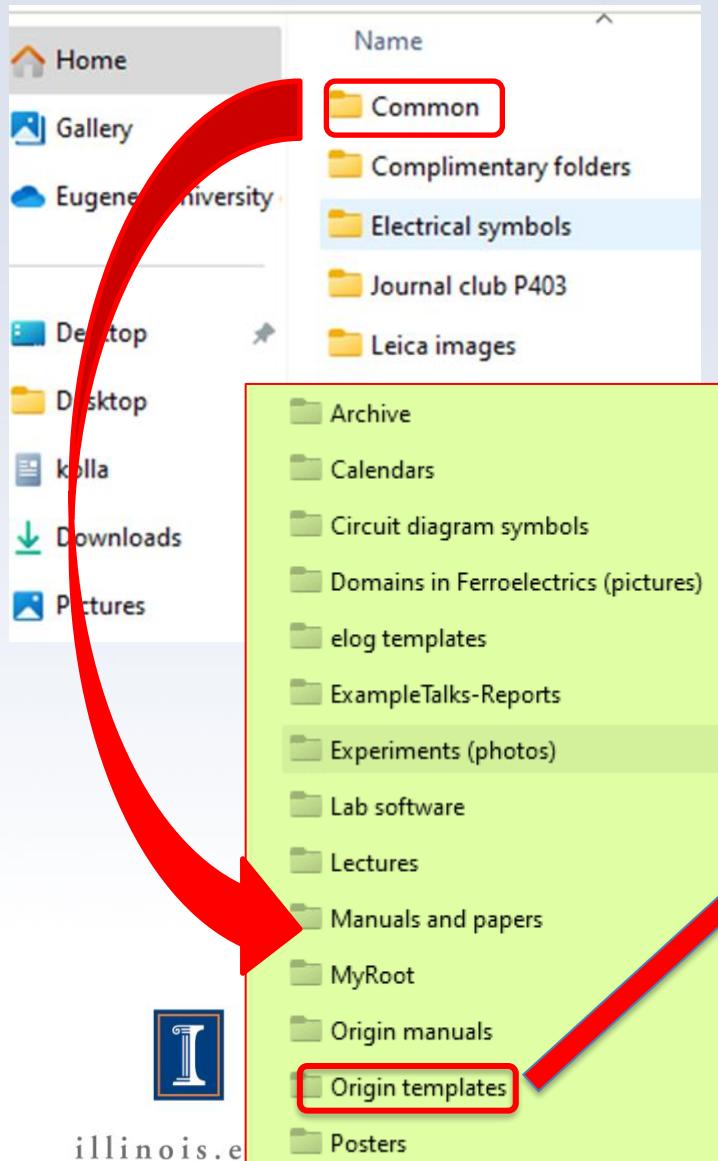
# Where to exchange, store and retrieve course information. (i) Your data, projects, tables etc

An example of the “smart” structure of folders containing the raw data and data analysis projects



# Where to retrieve course information.

**Manuals, papers, setup diagrams and other useful materials**



# Where to retrieve course information.

## *Origin templates*

Common

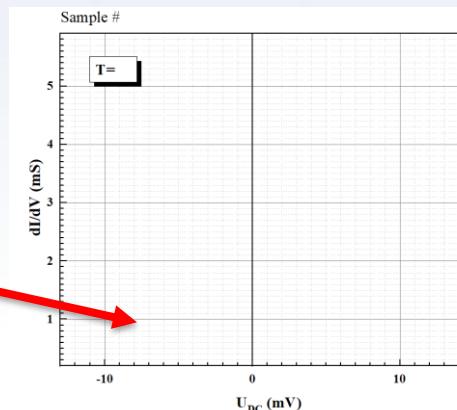
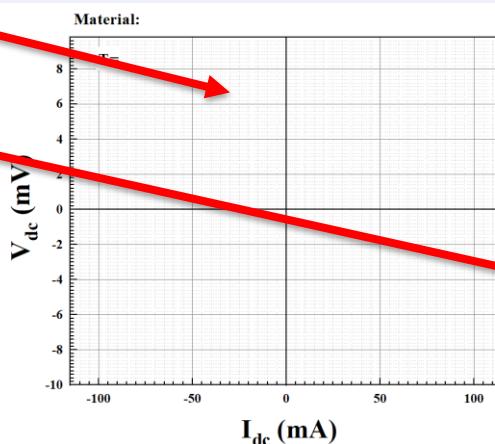
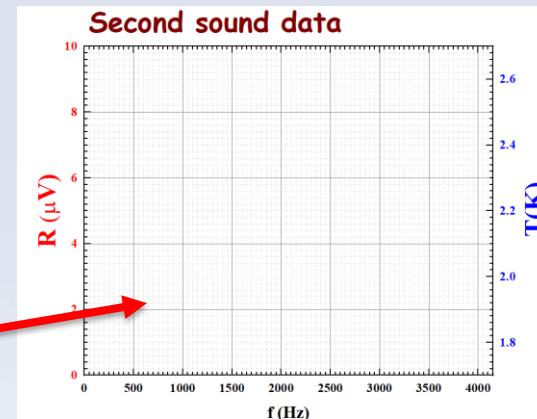
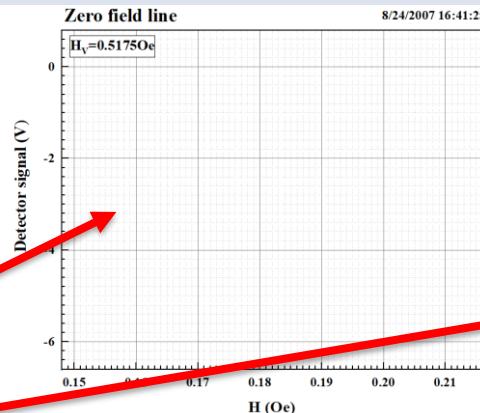
Origin templates

Optical pumping

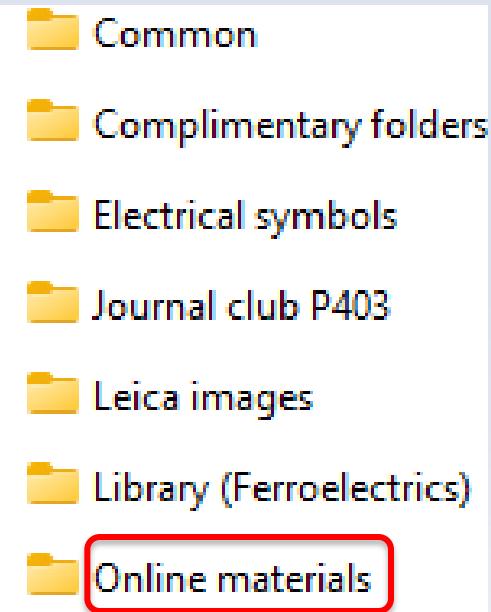
Second sound

Superconductivity

Tunneling



# Where to retrieve course information.



## Material Prepared for Online Teaching

- Alpha Range
- Ferro1
- Ferro2**
- Ferro3
- Fluorescence
- gamma spectroscopy
- gamma-gamma
- Introduction (videos)
- Moessbauer
- Muon Lifetime

- Dielectric data
- Equipment manuals
- Reading materials
- Setup
- Setup pictures

- ZFC experiment (papers)
- 1998\_Book\_FerroelectricPhenomenaInCr...
- Ferro2 experiment.docx**
- Ferro2 experiment2.docx
- Polarized Light Microscopy.pdf
- Shur\_FAST POLARIZATION REVERSAL.pdf



# Where to retrieve course information.

Common

Complimentary folders

Electrical symbols

Journal club P403

Leica images

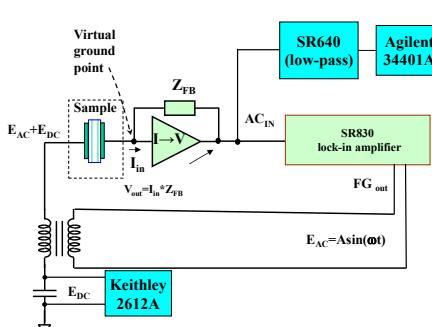
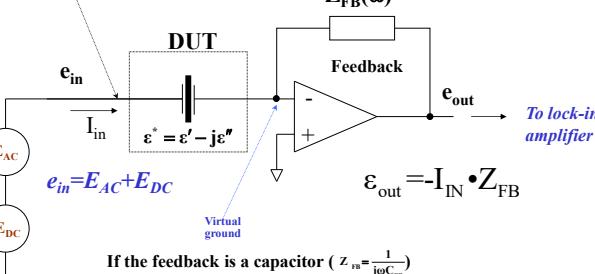
Library (Ferroelectrics)

Online materials

## Material Prepared for Online Teaching

*Measurement of the dielectric susceptibility*

$$I_{in} = e_{in} * j\omega C_0 (\epsilon' - j\epsilon'')$$



# Where to retrieve course information.

Common

Complimentary folders

Electrical symbols

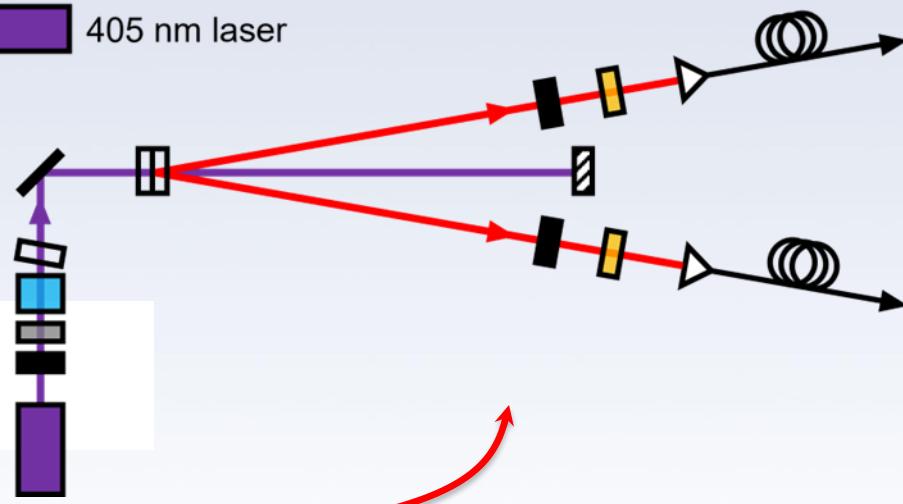
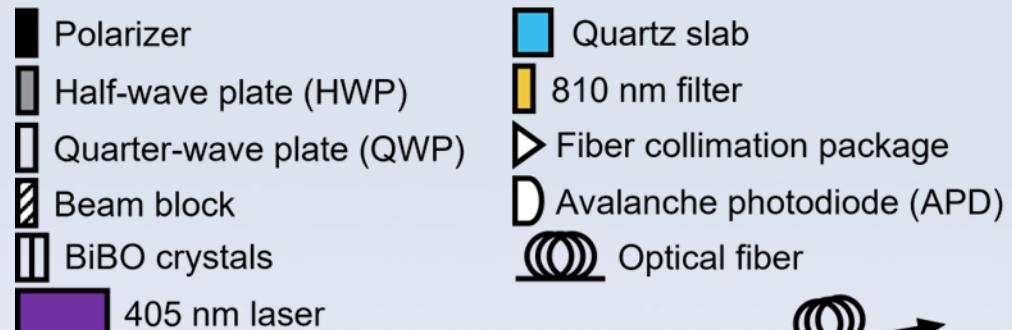
Journal club P403

Leica images

Library (Ferroelectrics)

Online materials

## Material Prepared for Online Teaching

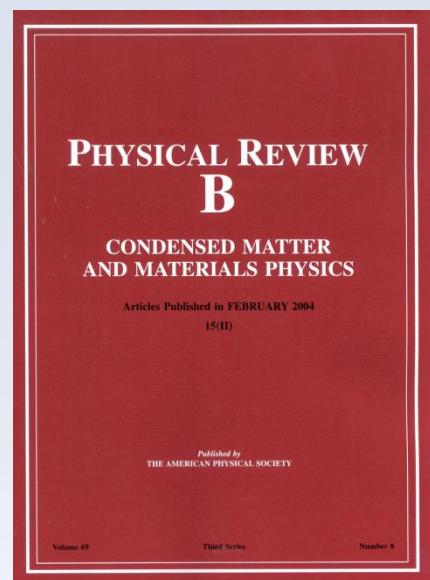
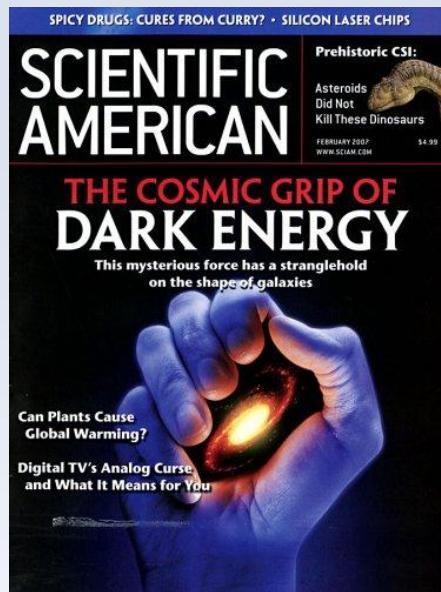
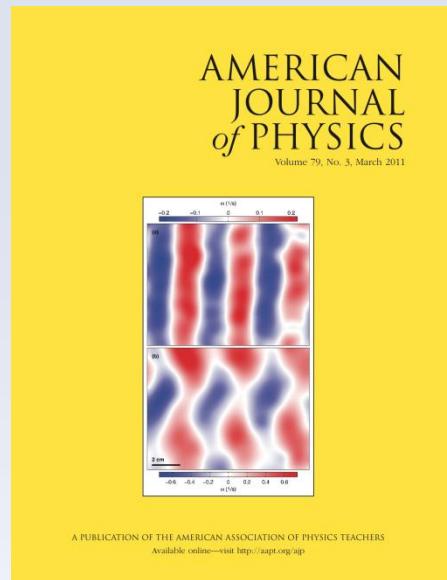


Quantum Key Distribution

Setup



# “Journal club”



<http://ajp.aapt.org/#mainWithRight>

<http://www.nature.com/nature/index.htm>

<http://www.scientificamerican.com/>

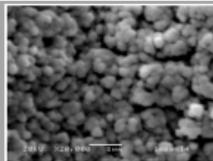
<http://www.sciencemag.org/journals>

<http://publish.aps.org> or <http://prola.aps.org/>



# “Journal club”

Walking with Coffee: Why Does it Spill?



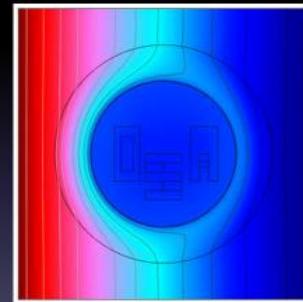
Growth of Diamond Films from Tequila

J. Morales<sup>1,2</sup>, L. M. Apátiga<sup>2</sup>, V. M. Castaño<sup>2</sup>

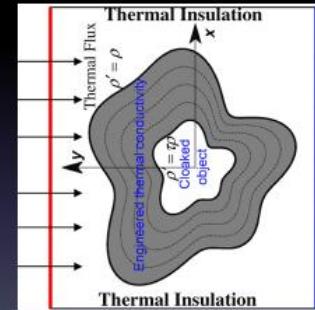
1. Facultad de Ciencias Fisico Matemáticas, Universidad Autónoma de Nuevo León

2. Centro de fisica Aplicada y Tecnología Avanzada, Universidad Nacional Autónoma de México

Fabrication and Characterization of Ultrathin Three-Dimensional Thermal Cloak



(Credit: Guenneau)



Student #3

University of Illinois at Urbana-Champaign

The Physics of Beer Tapping

PRESENTATION BY JOSEPH MIRABELLI

JAVIER RODRÍGUEZ-RODRÍGUEZ,<sup>1,\*</sup> ALMUDENA CASADO-CHACÓN, AND DANIEL FUSTER

<sup>1</sup> FLUID MECHANICS GROUP, CARLOS III UNIVERSITY OF MADRID

<sup>2</sup> CNRS, UNIVERSITÉ PIERRE ET MARIE CURIE



# “Journal club”

## *Journal Access*

If you cannot access journal papers using VPN, go to UIUC’s library proxy test site and enter the address of the paper you want to read:

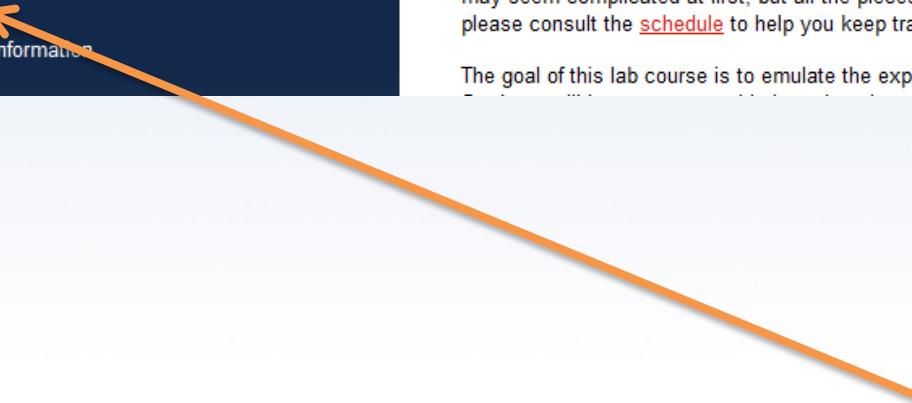
<http://www.library.illinois.edu/proxy/test/>

## *Recommended journal websites*

- **American Physical Society Journals:** <https://journals.aps.org/about>
- **Nature:** <http://www.nature.com/nature/index.html>
- **Science:** <http://www.sciencemag.org/journals>
- **American Journal of Physics:** <http://scitation.aip.org/content/aapt/journal/ajp>



# Entering the e-Log ...

- Home
- Course Schedule
- Gradebook
- Course Description
- Course Grading
- Contact Information
- Experiment Information
- Lectures
- Online Materials
- Final Oral Session Abstracts
- References
- E-LOG** 
- Section Information

## PHYS 403 Fall 2024



### Home page

#### Announcements

The first class of the semester will be an Introduction to Physics 403 course and will held in person and also translated virtually via Zoom; to join, use your netid and password to access this link: [Zoom link](#)

#### Welcome

Welcome to Modern Experimental Physics, where you will learn techniques and experiments in the physics of atoms, atomic nuclei, molecules, the solid state, quantum optics and other areas of modern physical research. Please see the [course description](#) for an explanation of how this course works. It may seem complicated at first, but all the pieces do work together to enhance understanding. Also, please consult the [schedule](#) to help you keep track of what is due when.

The goal of this lab course is to emulate the experience of working in an experimental research lab.

**Link to e-Log**



# Entering the e-Log ...

**Use your University  
Username and  
Password**

Please Sign In

Illinois Login

Or login as a guest



# Entering the e-Log ...

[Physics 403 Fall 2025](#) kolla 8/24/2025 4:32:23 PM

[Physics 403 Spring 2026](#) kolla 1/5/2026 1:56:05 PM

**Spring 2026 eLog Book**



# Entering the e-Log ...

My.Physics ▾    HR ▾    Finance ▾    Facilities ▾    Research ▾    Academic ▾    Outreach ▾

## ELOG: EDITING LOG FROM PHYSICS 403 SPRING 2026: NEW SUBJECT

[View Books](#) [View Logs](#)

[\[View all Physics 403 Spring 2026 logs\]](#)

Editing log: New subject

<b>Entry time</b>	1/5/2026 2:02:30 PM	<b>First author</b>	Eugene Colla
<b>Second author</b>		<b>Third author</b>	
<b>Experiment</b>	General post	<b>Post type</b>	Other
<b>Subject</b>	New subject		
<b>Text</b>	<p><b>Welcome to Physics 403 Course.</b></p> <p><b>Spring 2026.</b></p>		



# e-logs: Making a post ...

- To create a new post, click [Create New Log](#)
- Fill in the ***Author, Experiment, Post Type, and Subject.***  
**Don't forget to enter the name of the second author**

Entry time	6/7/2021 4:26:47 PM	First author	Eugene Colla
Second author	Student no2	Third author	Start typing name, select netID
Experiment	Ferro1	Post type	Setup
<a href="#">Load Template</a>			
Subject	First day record		



# e-Log . Using *Templates*

<b>Experiment</b>	<input type="text" value="Ferro1"/>	<input type="button" value="▼"/>
-------------------	-------------------------------------	----------------------------------



Templates are not “ready to go” eLog records. There are some suggestions and comments which you need to read, accept/decline and remove from the final version of the eLog record.

In Comments you have to provide the idea of the experiment. This is only template related to the



# e-logs: First a brief tour

- First day record: provide the *main goal of the experiment*.
- The records should contain *only the information and parameters of the experiment*.
- Provide the information of the *experimental setup: equipment, software, samples if this is the case* (if no modifications of the setup during working on experiment – no necessary to show the setup information in everyday records)
- Show some *plots of raw data*, specify *what analysis of the data was done*, show the *results of the analysis*.
- Show the *final results*: graphs, tables, numbers
- *Give the link where the whole set of data, analysis projects are stored*.
- *Some conclusions/suggestions*: results are close or not to expected; possible problems; ideas of how it is possible to improve the results by modifying the experiment of data analysis

# Some General Physics 403 Rules.



**No cellphones or computer activities during the talks, presentations and discussion (except the cases when it is necessary)**



# Some General Physics 403 Rules.



**No Food or Drinks in Lab except ESB 5105**



# USEFUL LINKS

# Physics 403

**Link to upload the reports, oral presentation files, final Abstracts:**

<https://my.physics.illinois.edu/courses/upload/>

**Link to Physics 403 Lab server**

<\\engr-file-03.engr.illinois.edu\PHYINST\APL Courses\PHYCS403>

**Connect to VPN following the instructions on the UIUC VPN website:**

<https://techservices.illinois.edu/services/virtual-private-networking-vpn/download-and-set-up-the-vpn-client>

**To connect to the PHYS403 Server:**

**Connect to the VPN first, then enter the following as the share to connect to:**

**Mac users: Open Finder: Go: Connect to Server, type in the address:**

<smb://engr-file-03.engr.illinois.edu/PHYINST/APL Courses/PHYCS403>

**Windows users: Open Windows Explorer, type in the address:**

<\\engr-file-03.engr.illinois.edu\PHYINST\APL Courses\PHYCS403>

**When prompted for username and password, enter:**

**“Uoff\[your netID]” and “[your netID password]”**

**Physics 403 WEB page:**

<https://courses.physics.illinois.edu/PYS403/fa2025/>