

PHYS 575A/B/C

Autumn 2015

# Radiation and Radiation Detectors

Course home page:

<http://depts.washington.edu/phycert/radcert/575website/>

## 12: Student reports session 3

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# Course calendar (revised)

week	date	day	topic	text
1	10/1/15	Thurs	Introduction, review of basics, radioactivity, units for radiation and dosimetry	Ch. 1, notes
2	10/6/15	Tues	Radioactive sources; decay processes;	Ch. 1, notes
3	10/13/15	Tues	Photomultiplier tubes and scintillation counters; Counting statistics	Chs. 3, 8, 9 (I-V)
3	10/15/15	Thurs	<b>LAB: Room B248</b> Scopes, fast pulses; <u>PMTs</u> and scintillation counters; standard electronics modules	Chs. 4, 9, 16, 17
4	10/20/15	Tues	Overview of charged particle detectors	Ch. 4
4	10/22/15	Thurs	<b>LAB: Room B248</b> Coincidence techniques; <u>nanosec</u> time measurement, energy from pulse area	Chs. 17, 18
5	10/27/15	Tues	Interaction of charged particles and photons with matter; counting statistics; gas detectors; <b>Proposal for term paper must be emailed to JW by today</b>	Chs. 2, 3; Chs. 5, 6, 7
6	11/3/15	Tues	ionization chambers; solid-state detectors	Chs. 11, 12, 13
7	11/10/15	Tues	Statistics for data analysis; Case studies: classic visual detectors (cloud and bubble chambers, nuclear emulsion, spark chambers)	Ch. 19, notes
8	11/17/15	Tues	Case studies: Cosmic ray detectors (Auger, Fermi gamma ray observatory); Cherenkov detectors: atmospheric <u>Cherenkov</u> , triggering <u>Cherenkov</u>	Ch. 19, notes
9	11/24/15	Tues	Case studies: neutrino detectors ( <u>IceCube</u> , <u>Daya Bay</u> , <u>Majorana</u> ), Detecting neutrons; high energy accelerators;	Ch. 19, notes Ch. 14, 15, 18
10	12/1/15	Tues	Finish case studies; begin student presentations	Notes
11	12/8/15	Tues	Student presentations <b>LAST CLASS!</b>	-
11	12/10/15	Thurs	Student presentations <b>Term papers due NOW</b>	

Tonight

# Announcements

- Final set of presentations
- 10-min sit-down for class evaluation (online form)
  - You may leave and do it later if you wish, or if you did not bring a device, but i hope everyone will submit the evaluation - and sitting down together is one way to get that done!

This evaluation was created with the following details:

Instructor being evaluated: R. Wilkes

Evaluation form type: A - Small Lecture/Discussion

Evaluation URL: <https://uw.iasystem.org/survey/148068>

The evaluation opens Dec 10, 2015 at 12:00am and closes on Dec 18, 2015 at 11:59pm.

- I'll show the url again after presentations

# Tonight's speakers

*15 min + 5 discussion for each talk tonight! I'll wave a 5min warning sign*

12/10/2015	6:40 PM	Nathan Hicks	Methods of Radionuclide Production for Medical Isotope Usability: Meeting the Demand
	7:00 PM	Farrah Tan	QCD
	7:20 PM	Nicolas Michel-Hart	microXRF
	7:40 PM	Michael Esuabana	proton-Boron11 fusion
	8:00 PM	Kaifu Lam	Synchrotrons
	8:20 PM	Johnathan Slack	X-rays/Gamma rays of comets and asteroids

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- THANKS EVERYONE – IT HAS BEEN FUN LEARNING WITH YOU !