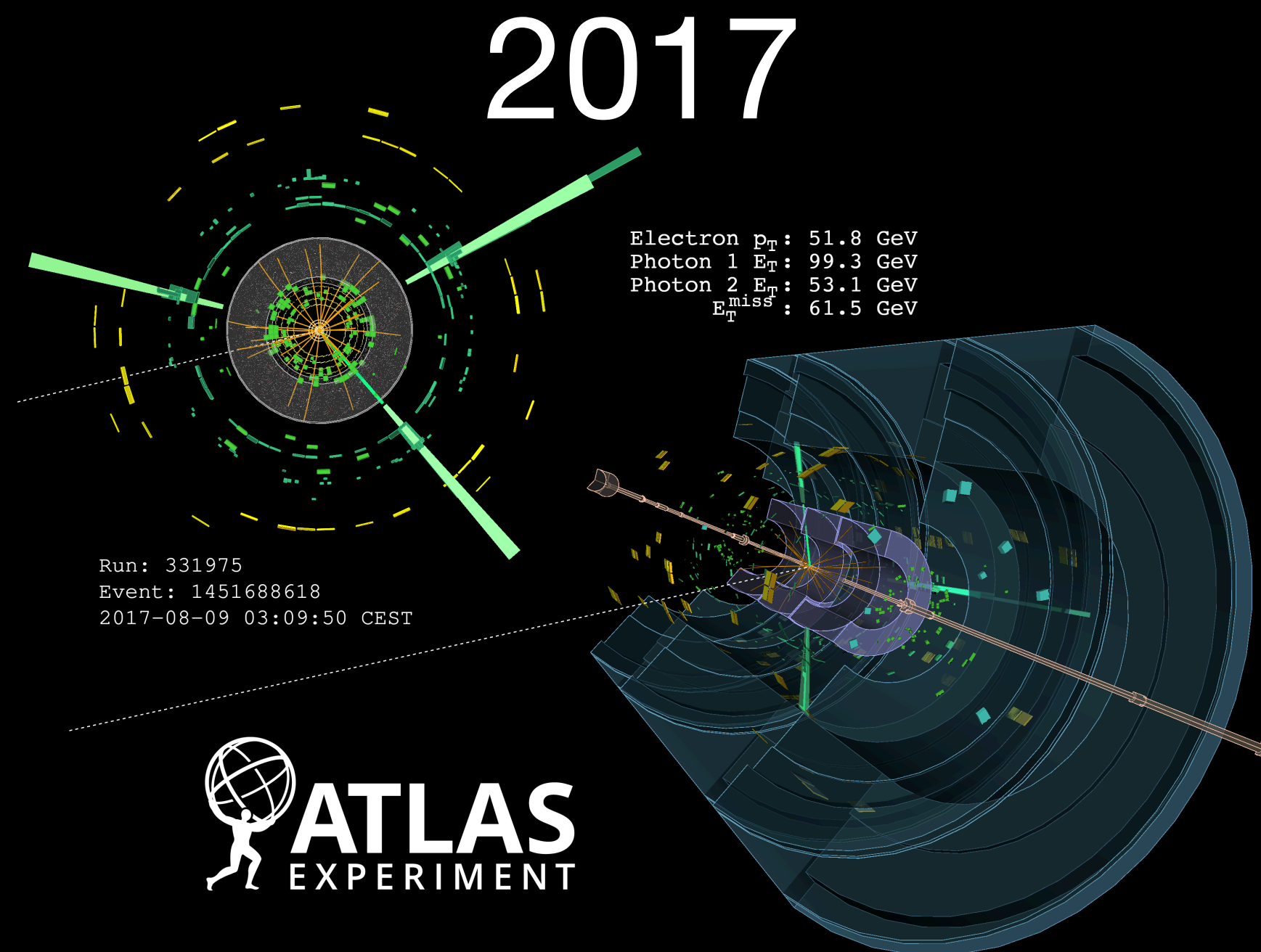


# PHYS 7363 - Experimental Particle Detection and Detectors I



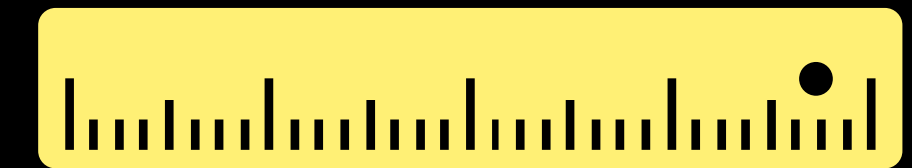
Particle detectors are the workhorses of experimental physics. In this course, we'll dive deep into their physics, exploring the incredible evolution of our experimental techniques over the past nine decades. You'll gain a solid understanding of *particle detection and identification*, examine the intricate designs of modern detectors, and learn how machine learning is being harnessed to push the boundaries of detector design. If you're intrigued by how we “see” subatomic particles, this course is for you!



Detect



Identify



Measure

To discuss prerequisites (and any questions on the content of the course), please contact me: [saptaparnab@smu.edu](mailto:saptaparnab@smu.edu)



# Schedule

Month	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
October	6 <input checked="" type="checkbox"/> 1.5 hours	7	8 <input checked="" type="checkbox"/> 1.5 hours	9	10	11	12
	13 <input checked="" type="checkbox"/> 1.5 hours	14	15 <input checked="" type="checkbox"/> 1.5 hours	16	17 <input checked="" type="checkbox"/>	18	19
	20	21	22	23 <input checked="" type="checkbox"/> 1.5 hours	24 <input checked="" type="checkbox"/> 1.5 hours	25	26
	27: Midterm	28	29	30	31	1	2
November	3	4	5	6	7	8	9
	10	11	12	13	14	15	16
	17	18	19	20	21	22	23
	24	25	26	27	28	29	30
December	1	2	3	4	5	6	7
	8	9	10	11	12	13	14

# Relevant parts of the book

- Chapters: 1-3
- Chapter: 8 (Semiconductor detectors)
- Chapter: 9 (Track model)
- Chapter: 15 (Calorimeters)
- What we will cover (at a minimum):
  - Chapter 12-13 and scintillation detectors, 14 (particle identification), 18 (triggers)
  - Accelerator basics

# Discussion of the midterm

- Overall performance could have been better but I will not make you take another midterm.

# GEANT installation

- Discussion led by Isuru