

## PHY492 Tier II Term Paper Topics

I am looking for an 8-10 page paper with three sections: I – an in depth discussion of the state of particle physics at the time of the discovery, II – a description of the experiment used (or needed) to make the discovery, including details of the physics behind the operation of each component of the apparatus, and III – the impact the discovery had on particle physics theory.

Discovery of the

muon	psi meson
positron	gluon in 3 jet events
neutron	charmonium states
neutrino	CKM mixing matrix
Fermi constant	upsilon
violation of parity	B meson & CP
antiproton	W & Z bosons
Cabibbo angle	top quark
CP violation in K decay	neutrino oscillations
hadron resonances	(hypothetical) Higgs boson
muon g-2 anomaly/validation	(hypothetical) supersymmetric particles

You should feel free to suggest a similar topic, but it is probably best to discuss it with me before you invest too much time in it. In any case I would like a one page, point form, outline of your paper by March 23 in order to gauge the scope of your proposals and make sure people are on track. Deadline for submission is April 27.

Though not stated in the syllabus, the Term Paper will be graded 25 – 50 points and added to your point total for the semester. The 300 point total for a 4.0 is unchanged. Late submission or a grade below 25 points will result in an Incomplete as your grade.

If you believe you have completed the Tier II writing requirement elsewhere, have the professor in charge of that program send me an email stating that you have completed this requirement. Nevertheless, you may wish to submit a paper to receive the additional points toward a course grade.

