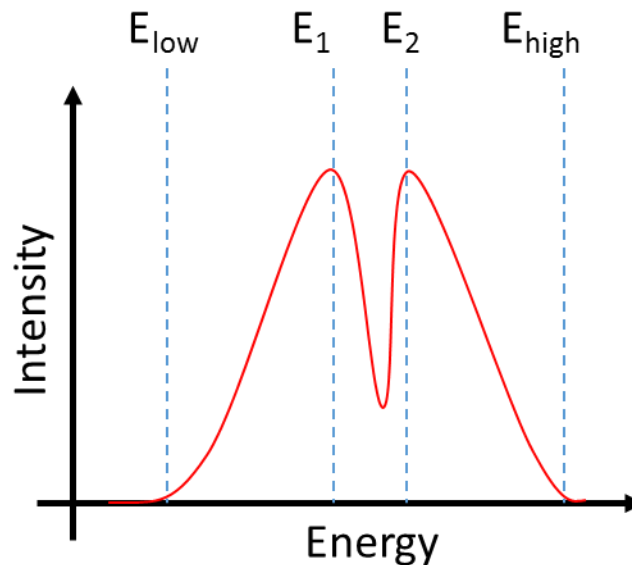


Quals 2015, Electromagnetism, Jonathan Fan

Question 1: What is a Michelson Interferometer? Draw it out. What response do you get when the source is monochromatic?

Question 2: Thermal sources, such as a light bulb, are “incoherent,” as oppose to a laser, which is “coherent.” What is the difference between the two? And can the spectrum of a thermal source be resolved in the interferometer? Why or why not?

Question 3: Suppose the source has a spectrum with the following form:



The movable arm of the interferometer can move in increments of ΔL over an entire length L . Discuss how ΔL and L should be specified in order to resolve the spectrum above.