

# PHYS 5130, Extra Credit Question due at 5 pm on Tuesday, May 3<sup>rd</sup>

In lecture, we discussed active, passive, and Kerr lens mode locking. However, we skipped three other commonly used mode locking techniques: synchronous pumping, colliding pulse mode locking, and additive pulse mode locking. Pick one of these techniques and write a description, including figures, relevant equations, and appropriate references, about it. Beyond describing the mode locking method, you should also discuss which lasers this technique is commonly used with, what kind of pulse durations it produces, and the benefits and drawbacks of the method. Please limit your submission, including references, to one, double-sided page with 1" margins, 12 point font (Times New Roman or Arial).