

ECE594I, Fall 2008

THz Science, Technology, and Systems

Professor E. R. Brown, 2205C Engineering Sciences Bldg, erbrown@ece.ucsb.edu.

- **Designed as a survey course but with enough substance to act as a foundation for students entering the THz field.**
- **Lecture Hours: Tuesdays and Thursdays, 4:00 – 5:50pm; 1431 Phelps.**
- **Office Hours: Wednesday, 4:00 – 5:50 PM or as late as it takes.**
- **First Lecture: Tuesday Sept. 30.**
- **Homeworks: Not mandatory; assigned periodically; questions and answers provided; recommended for the most motivated students.**
- **Grading: Best of two quizzes: 50%; Experimental project: 50%**
- **Quiz#1 (Tentative): Tuesday 28 October, 5:00 – 5:50pm**
- **Quiz#2 (Tentative): Tuesday 2 December 5:00 – 5:50pm**
- **Project; experimental (hands-on); two parts: (1) measurement of water vapor line with photomixing spectrometer (Brown's Lab, ECE), linefit in MATLAB with Lorentzian, Gaussian, and Voigt models, (2) (tentative) characterization of biological material with THz vector reflectometer (Prof. Sherwin's Lab, Physics). Timing and coordination of both experiments to be announced.**
- **Quiz style: Mostly qualitative and conceptual; closed notes, but lots of clues**
- **Course Assignments and Material for each Week will be provided on the Course Website prior to the lectures. Look in the .pdf file entitled Course Materials: Week XX http://www.ece.ucsb.edu/current_courses.shtml**

Suggested Review Article#1 (THz Technology): "THz Technology," P.H. Siegel, IEEE Trans. Microwave Theory and Tech., vol. 50, March 2002, pp. 910-928.

Suggested Review Article#2 (THz Principles): "Fundamentals of Terrestrial Millimeter-Wave and THz Remote Sensing," E.R. Brown, in Terahertz Sensing Technology, Vol. 2: Emerging Scientific Applications and Novel Device Concepts, ed. by D.L. Woolard, W. R. Loerop, and M.S. Shur (World Scientific, Singapore, 2004).