

USB SPECTROMETERS AND THE TEMPERATURE OF THE SUN: MEASURING BLACK BODY RADIATION IN THE PALM OF YOUR HAND

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A new experiment appropriate for both general chemistry and physical chemistry students will be described. The experiment utilizes "pocket size" USB spectrometers (operating in the UV/vis region) coupled with fiber optic cables to record a solar spectrum. A further extension of the experiment involves recording spectra of a light bulb at several voltages (and thus resistances). Using provided software, students can fit black body distributions to their obtained spectra. The software will display the acquired spectrum, a simulation based on their guess temperature, a simulation based on their fit, and OMC^2 for both. Students can then compare their results to the known temperature of the sun and the known temperature vs resistance curve of tungsten.