

# **SLIMER**

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SLIMER, or the Scintillator-Layered Imaging Microscope for Environmental Research, is a system made up of a commercial fluorescence microscope, an electron-multiplying charge-coupled device (EMCCD) camera, and a scintillator. Emissions from a radioactive source are detected and amplified through the scintillator and EMCCD camera, appearing as bright pixels in the camera from the deposited energy of the decay. The main work in this research was attempting to find a calibration for the energy to the pixel intensity of a detected decay. Two separate studies of beta and alpha sources were used for these calibrations. Originally made for soil analysis, the goal of SLIMER is to be able to take an environmental sample, incubate it with a radioactive source and fluorescently label it in an array, and identify what microbes had metabolized the radioactive source. To do this, we would look at the location and energy of a decay and compare it to our array to find the microbial species. This technique serves as another possibility of identifying a microbial species to their metabolic function meaning there are many possibilities of application for this system.