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Construction of a BioFluorescence Optical Particle Counter

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A bioaerosol fluorescence detection system is being constructed using an ellipsoid reflector based optical particle counter. The flux measuring device is to size submicron marine spray aerosol particles smaller than 100 nm in diameter. It will simultaneously non-destructively excite and detect fluorescence from organic matter contained in the aerosol. Chlorophyll-a is the primary fluorophor target, used as a marker for detecting phytoplankton (or derivatives thereof) in the particles. Particles have been sized to 167 nm in diameter and fluorescence detection testing is underway. The device will aid the quantification and identification of this organic material contained in marine spray aerosols, providing improved inputs into climate models and air quality assessments.