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Building New Dynamic Light Scattering Spectroscopy System MAXWELL ORSENO, KIRIL STRELETZKY, Cleveland State University — Our goal is to construct a high resolution, versatile Light Scattering Spectroscopy Setup. When complete, this system will allow measurements with Dynamic Light Scattering and Static Light Scattering techniques, with polarized and depolarized light, several different laser wavelengths, and a wide range of scattering angles and temperatures. The first task was to get the Ar+ laser operational. A water cooling system for the laser was developed and installed. Laser bases for the Ar+ laser as well as a He-Ne laser were designed and machined. A system of mirrors that allows for a quick change from one laser to the other was added. The Ar+ laser itself was tuned for optimal output. The light scattering spectroscopy system was aligned and test experiments were run on it. The data, after collected and analyzed, was compared with the data on existing Dynamic Light Scattering setup. The new results demonstrate that both polarized and depolarized Dynamic Light Scattering experiments of high accuracy can be successfully performed at several different laser wavelengths and a range of scattering angles using the new Light Scattering Setup. Careful tests of Static Light Scattering on the new system are still needed to be performed.

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