

Abstract Submitted
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Construction of a cost effective optical tweezers for manipulation of birefringent materials using circularly polarized light¹ ALLISON MCMAHON, TONI SAUNCY, Angelo State University Department of Physics — Light manipulation is a very powerful tool in physics, biology, and chemistry. There are several physical principles underlying the apparatus known as the “optical tweezers,” the term given to using focused light to manipulate and control small objects. By carefully controlling the orientation and position of a focused laser beam, dielectric particles can be effectively trapped and manipulated. We have designed a cost efficient and effective undergraduate optical tweezers apparatus by using standard “off the shelf” components and starting with a standard undergraduate laboratory microscope. Images are recorded using a small CCD camera interfaced to a computer and controlled by LabVIEWTM software. By using wave plates to produce circular polarized light, rotational motion can be induced in small particles of birefringent materials such as calcite and mica.

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