

Abstract Submitted
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Classroom Physics Applications Using The Open Source Physics (OSP) Library JAVIER HASBUN, State University of West Georgia — During the past few years the OSP library¹ has gained broad usage due to the various workshops held recently, in addition to the development of a wide variety of applications.² Here, three applications are presented in which such library has been employed and which are suitable for classroom use. The first is a 17 function data curve-fitter. The fitter can do up to 5th order polynomials, and includes power, logarithmic, lorentzian, and gaussian curve fitting capabilities. Such applications can be useful in undergraduate laboratories as well as in research involving undergraduates. The second application involves the simulated solution of a charged particle in crossed electric and magnetic fields, in which the 2D cycloidic behavior of the motion can be easily demonstrated. The third and final application involves the extension of the charged particle interacting with Both E and B fields. The motion that results from solving the equations $md^2\vec{r}/dt^2 = q\vec{v} \times \vec{B} + \vec{E}$ is demonstrated in three dimensions with the ability to experiment with the parameters that affect the particle's trajectory as well as the user's viewpoint. The final versions of the applets will be available at <http://www.westga.edu/~jhasbun/osp/osp.htm>, including the source code.

¹ J. E. Hasbun APS. Bull. 49, 1361 (2004).

² <http://www.opensourcephysics.org>

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