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The Lambda Point in a Low-g Simulator- Progress Report. Melora Larson, Ulf Israelsson, Jet Propulsion Lab.~L~Or@L~u, California Institute of Technology and Robert Duncan, Sandia National Laboratory. — Recently interest has increased both experimentally and theoretically in studying the properties of liquid helium very near the lambda-transition in the presence of a heat current. Traditional ground based experiments near the lambda-transition are limited by the gravitationally induced pressure variations present in any macroscopic helium sample. We report on the progress toward building a new low temperature cryostat that will utilize magnetostrictive forces to minimize the effects of gravity. This new cryostat will allow studies of the lambda transition much closer in reduced temperature and under a wider range of applied heat currents than is possible using traditional ground based techniques. The limitations of the magnetostrictive technique will be discussed. Finally, new experiments made possible by this cryostat will be presented.