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Nano-Electric Field Technology (NEFTY) (P)

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Final Research Summary

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The NEFTY SR&T grant was focused on the development of novel electric field boom systems for sounding rocket applications. A "yo-yo"-type boom that unwraps from a rotating and damped axle was analyzed through a simulation with Prof. Psiaki of Mechanical and Aerospace Engineering at Cornell University. The basic parameters of the analysis were evaluated and validated on a spinning platform prototyping system developed at Cornell University. The full "yo-yo"-type boom system is being developed for the SIERRA sounding rocket flight scheduled for a January 2002 launch.

The principal results from this study were published in "Rapid energy dissipation in a yo-yo-type wire boom deployment system," M.L. Psiaki, P.M. Kintner, Jr., and S.P. Powell, *Journal of Guidance, Control, and Dynamics*, 23(3), 483-490, 2000. (Also in *Proceedings of the 1999 AIAA Guidance, Navigation, and Control Conf.*, Aug. 1999, Portland, OR, pp. 1424-1436.)