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The effect of tailored voltage waveforms on neutral gas heating in a radio-frequency driven electrothermal microthruster SCOTT DOYLE, York Plasma Institute, Department of Physics, University of York, Heslington, YO10 5DQ, UK, ANDREW GIBSON, Laboratoire de Physique des Plasmas-CNRS, Ecole Polytechnique, 91128 Palaiseau, FR, RODERICK BOSWELL, CHRISTINE CHARLES, Space Plasma, Power and Propulsion Laboratory, Research School of Physics and Engineering, The Australian National University, Canberra, ACT 2601, Aus, JAMES DEDRICK, York Plasma Institute, Department of Physics, University of York, Heslington, YO10 5DQ, UK — Over the past few decades there has been a growing interest in the development compact sources of electric propulsion. In this study the effect of driving the Pocket Rocket radio-frequency electrothermal microthruster with non-sinusoidal voltage waveforms, consisting of multiple harmonics of 13.56 MHz, is investigated using the Hybrid Plasma Equipment Model (HPEM). The results are compared to previous experiments and simulation results using CFD-ACE+ to investigate the potential to generate an increased neutral gas temperature and density in the source. The authors gratefully acknowledge M. Kushner of the University of Michigan for the use of the Hybrid Plasma Equipment Model (HPEM).

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