**Custom Normalized Tangent** Normalized Applied Stiffness  $f/(u^{0.15} + 0.1)$ Force (f)Normalized Displacement (u) 0.75 0.4 0.4 0.50 0.2 0.2 RUL 90000 **RUL 90000** 0.25 **RUL 90000 RUL 45000 RUL 45000 RUL 45000** 0.0 0.00 0.0 **RUL 5000 RUL 5000 RUL 5000** -0.25-0.2-0.2-0.50-0.4-0.4-0.75250 500 750 1000 1250 1500 250 500 750 1000 1250 1500 250 500 750 1000 1250 Normalized Acceleration  $d^2u/dt^2$ Normalized *dK/dt* Normalized  $dW_p/dt$ **RUL 90000 RUL 45000 RUL 5000 RUL 90000 RUL 90000 RUL 45000** 0 **RUL 45000** 0 · **RUL 5000 RUL 5000** -2-1-4 250 500 750 1000 1250 1500 250 500 750 1000 1250 250 500 750 1000 1250 1500 1500