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Short Range Test of the Gravitational Inverse Square Law using the Fourier Bessel Torsion Pendulum TED COOK, ERIC ADELBERGER, BLAYNE HECKEL, ERIK SWANSON, University of Washington — For this experiment, we removed pie shaped wedges from 50 micron thick tungsten foils to create 120-fold rotationally symmetric attractor and detector masses. The detector mass is hung from a thin tungsten fiber. The attractor mass is rotated continuously beneath it, providing a gravitational drive signal at 120 times the rotational frequency which is recorded via an autocollimator. Comparing the angular deflection of the detector to a precise Newtonian calculation, we are able to place new limits on range-dependent, non-Newtonian physics below 50 microns.

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