Abstract Submitted
for the DPP13 Meeting of
The American Physical Society

**A 10MHz Fiber-Coupled Photodiode Imaging Array for Plasma Diagnostics** SAMUEL BROCKINGTON, ANDREW CASE, F. DOUGLAS WITHERSPOON, HyperV Technologies Corp — HyperV Technologies has been developing an imaging diagnostic comprised of arrays of fast, low-cost, long-record-length, fiber-optically-coupled photodiode channels to investigate plasma dynamics and other fast, bright events. By coupling an imaging fiber bundle to a bank of amplified photodiode channels, imagers and streak imagers of 100 to 10,000 pixels can be constructed. By interfacing analog photodiode systems directly to commercial analog to digital convertors and modern memory chips, a prototype pixel with an extremely deep record length (128k points at 40 Msamples/s) has been achieved for a 10 bit resolution system with signal bandwidths of at least 10MHz. Progress on a prototype 100 Pixel streak camera employing this technique is discussed along with preliminary experimental results and plans for a 10,000 pixel imager. Work supported by USDOE Phase 1 SBIR Grant DE-SC0009492.

Samuel Brockington
HyperV Technologies Corp

Date submitted: 08 Jul 2013 Electronic form version 1.4