Abstract Submitted
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Improved Fast, Deep Record Length, Time-Resolved Visible Spectroscopy of Plasmas Using Fiber Grids.[1] S BROCKINGTON, A CASE, E CRUZ, A WILLIAMS, F D WITHERSPOON, HyperV Technologies Corp, R HORTON, R KLAUSER, D HWANG, University of California at Davis — HyperV Technologies is developing a fiber-coupled, deep record-length, low-light camera head for performing high time resolution spectroscopy on visible emission from plasma events. By coupling the output of a spectrometer to an imaging fiber bundle connected to a bank of amplified silicon photomultipliers, time-resolved spectroscopic imagers of 100 to 1,000 pixels can be constructed. A second generation prototype 32-pixel spectroscopic imager employing this technique was constructed and successfully tested at the University of California at Davis Compact Toroid Injection Experiment (CTIX). Pixel performance of 10 Megaframes/sec with record lengths of up to 256,000 frames ($\sim$25.6 milliseconds) were achieved. Pixel resolution was 12 bits. Pixel pitch can be refined by using grids of 100 μm to 1000 μm diameter fibers. Experimental results will be discussed, along with future plans for this diagnostic.

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