

Abstract Submitted
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Study of radiation yield dynamics and implosion characteristics of Al wire arrays in comparison with Al cylindrical wire arrays and X-pinches at 1MA Zebra generator VIDYA NALAJALA, VICTOR KANTSYREV, ALLA SAFRONOVA, DMITRY FEDIN, ISHOR SHRESTHA, SHIVAJI POKALA, STEVE BATIE, ALEXEY ASTANOVITSKIY, BRUNO LEGALLOUDEC, University of Nevada, Reno, JOSH GRADEL, Ktech Corp. — Study of X-ray/EUV yields and timing characteristics of radiation bursts from Al planar wire arrays on 1MA, 100 ns Zebra generator have been performed. These results are compared with that of Al X-pinches and cylindrical wire arrays on the same generator. Planar arrays showed higher total energy yields (11kJ) and sub-keV yield (7 kJ) than x-pinches (8 and 3.5 kJ) and cylindrical arrays (4-6 and 1-1.7 kJ). Study of timing characteristics shown single shot x-ray burst from planar arrays (K-shell rise time 3-5 ns width), which is much less compared to cylindrical array (20-30 ns). In case of x-pinches, typically multiple bursts (more than 1-3, with shorter time 1-2 ns) occurred. Planar array power measured of 0.3-0.5 TW (sub-keV region) is greater than to x-pinches (0.1 TW) and much higher in comparison with cylindrical arrays (0.03-0.05 TW). Therefore, planar wire arrays proved to deliver higher powers than cylindrical wire arrays and x-pinches with time width of radiation bursts much closer to that of x-pinches. Work supported by the DOE/ NNSA under UNR grant DE-FC52-01NV14050 and by Sandia National Laboratories under DOE contract DE-AC04-94AL85000.

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