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Frontier experimental research at LCLS/MEC[1] HAE JA LEE, SLAC Accelerator National Laboratory — Since the advent of a new technique using the Linac Coherent Light Source (LCLS), an x-ray free electron laser source, MEC instrument offers new experimental-platforms combining LCLS with high power optical lasers for high energy density science. The LCLS has $\geq$3 mJ per 60 fs pulse enabling an intensity x-ray beam between 4 keV -9.5 keV to be focused onto a small spot $\sim$2 micron at MEC. The research areas that MEC instrument will address include equation of state under extreme conditions, behavior of materials under high-pressure, and phenomena of shock compressed matter. In this talk, we present the details of the MEC instrument and highlight several experiments.

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