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Design of a Thomson scattering system for the ZaP experiment R.P. GOLINGO, U. SHUMLAK, B.A. NELSON, D.J. DEN HARTOG, D.T. SCHMULAND, Aerospace and Energetics Research Program, University of Washington — The ZaP Flow Z-Pinch Experiment is presently studying the effect of sheared flow on gross plasma stability. During a quiescent period in the magnetic mode activity, a dense Z-pinch with a sheared flow is observed on the axis of the machine. Presently the local plasma properties are found by deconvolving chord integrated measurements. A single point Thomson scattering system is being built to directly measure the local electron temperature in the Z-pinch. The cost of the system has been minimized by using available equipment: a Korad ruby laser, a Hibshman spectrometer, an ITT MCP and Lecroy 6880 digitizers. Scattered light can be collected up to 4 cm off the axis of the machine. The expected Thomson signal has been calculated to be 10 times the measured background radiation level. Initially the system will measure the electron temperature at a single point in the plasma. The design allows for the system to be upgraded to a multipoint Thomson scattering system which would measure the pressure profile of the Z-pinch. The design of the system and initial results will be presented.

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