Itinerant magnetism in CaMn$_2$Al$_{10}$\textsuperscript{1} JACK SIMONSON, Farmingdale State College, LUCIA STEINKE, Brookhaven National Laboratory, SHELBY ZELLMAN, JEDEDEAH KISTNER-MORRIS, AKSHAT PURI, Stony Brook University, EVON ANDREWS, Farmingdale State College, MEIGAN ARONSON, Stony Brook University and Brookhaven National Laboratory — We report the synthesis and basic properties of CaMn$_2$Al$_{10}$, a new itinerant magnet that is nearly isostructural with the known quantum critical compound YFe$_2$Al$_{10}$. Magnetic susceptibility measurements performed on single crystals reveal a cusp at 2 K. Electrical resistivity measurements similarly have a maximum at this temperature, and heat capacity measurements show a broad peak with total entropy of $\sim 10% R \ln 2$. These results together with those of neutron diffraction measurements suggest that CaMn$_2$Al$_{10}$ is weakly magnetic and potentially close to a quantum critical point.

\textsuperscript{1}Research supported by a DOD National Security Science and Engineering Fellowship via the AFOSR.