Abstract Submitted
for the DFD19 Meeting of
The American Physical Society

Thermal effects in cavitating flows MARTIN PETKOVSEK, University of Ljubljana, DREW JACOBS, MINGMING GE, OLIVIER COUTIER-DELGOSHA, Virginia Tech — The effects of temperature on hydrodynamic cavitation in water is investigated. Temperature is varied between 20C and 85C in a cavitating flow generated in a small-scale venturi type section of 1 mm characteristic dimension. The effects of the temperature on the large-scale periodical cloud shedding is investigated, as well as the evolution of the flow structure and dynamics. The measurements are based on high speed visualizations and 2D2C PIV. A competition between two different effects, namely the Reynolds number change and the cavitation delay due to the so-called thermal effect, is observed. A critical temperature in the range 50C-60C is found and especially investigated.

Olivier Coutier-Delgosha
Virginia Tech

Date submitted: 01 Aug 2019 Electronic form version 1.4