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High-repetition rate, structured liquid target development for intense laser-plasma interactions JOSEPH SNYDER, Miami University, JOSEPH SMITH, The Ohio State University, JOHN MORRISON, KEVIN GEORGE, Innovative Scientific Solutions, Inc., SCOTT FEISTER, California State University, Channel Islands, KYLE FRISCHE, Innovative Scientific Solutions, Inc., GREGORY NGIRMANG, National Academy of Sciences, Engineering, and Medicine, AFRL, CHRIS ORBAN, ENAM CHOWDHURY, The Ohio State University, ANDREW CASWELL, Air Force Research Lab — Rapid advancements in high-repetition rate laser systems necessitate improvement in target capabilities. Using liquid micro-jets and micron-scale liquid droplets, we produce thin film sheet targets and free standing structured targets for high-repetition rate laser-plasma experiments. We present an overview of the target system used with the Extreme Light Group at Wright Patterson Air Force Base and several achievable structured target geometries. We also present particle-in-cell simulations on the reduced mass structured targets to demonstrate their applicability in laser driven sources of ions and electrons.

Joseph Snyder
Miami University

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