Abstract Submitted
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Optimized and Automated design of Plasma Diagnostics for Additive Manufacture[1] JAMES STUBER, MORGAN QUINLEY, PAUL MELNIK, PAUL SIECK, TREVOR SMITH, KATHERINE CHUN, SIMON WOODRUFF, Woodruff Scientific Inc — Despite having mature designs, diagnostics are usually custom designed for each experiment. Most of the design can be now be automated to reduce costs (engineering labor, and capital cost). We present results from scripted physics modeling and parametric engineering design for common optical and mechanical components found in many plasma diagnostics and outline the process for automated design optimization that employs scripts to communicate data from online forms through proprietary and open-source CAD and FE codes to provide a design that can be sent directly to a printer. As a demonstration of design automation, an optical beam dump, baffle and optical components are designed via an automated process and printed.

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Simon Woodruff
Woodruff Scientific Inc

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