Fabricating Targets for Laboratory Astrophysics Laser Experiments

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Advancements in target fabrication have allowed the field of laboratory astrophysics to continually expand its options for diagnostics and experimental conditions. With increasingly complex designs, repeatable and accurate target fabrication is essential. At the University of Michigan, targets are designed and assembled from a foundation of proven techniques, including the use of precision mechanical stages and the implementation of machine-based design concepts. Between experimental campaigns, alternative materials are researched to improve future target designs. Assembly is efficient and precise by integrating our design process with proven and developing fabrication techniques, while still challenging the capabilities of the fabrication team. Open communication between the fabrication team and the experiment designer throughout the design process and build cycle ensures well-fabricated experiments that achieve not only the desired geometry, but ensure that the diagnostics in use obtain the best data possible**.** Within each new build cycle we refine current techniques and build prototypes, testing new materials and assembly techniques, thereby increasing our available resources for the next cycle. These techniques allow us to maintain excellent build quality and repeatability while simultaneously training new target fabrication students each year.

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