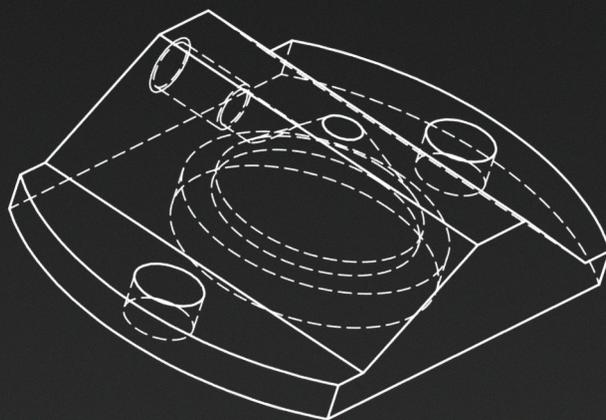


Source **LAB**

Targetry Products

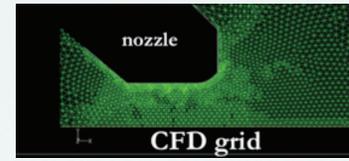
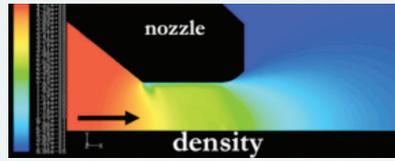
SL-NOZ

**Interaction regimes and physics
require precise nozzle
manufacturing**



Unique solutions for nozzle manufacturing

- ▶ **Flow simulation**
 - from a CAD file or specifications
- ▶ **Manufacturing**
 - metal, ceramic, 3D printing
- ▶ **Characterization**
 - interferometry from Phasics®



Specific nozzles for interaction regimes

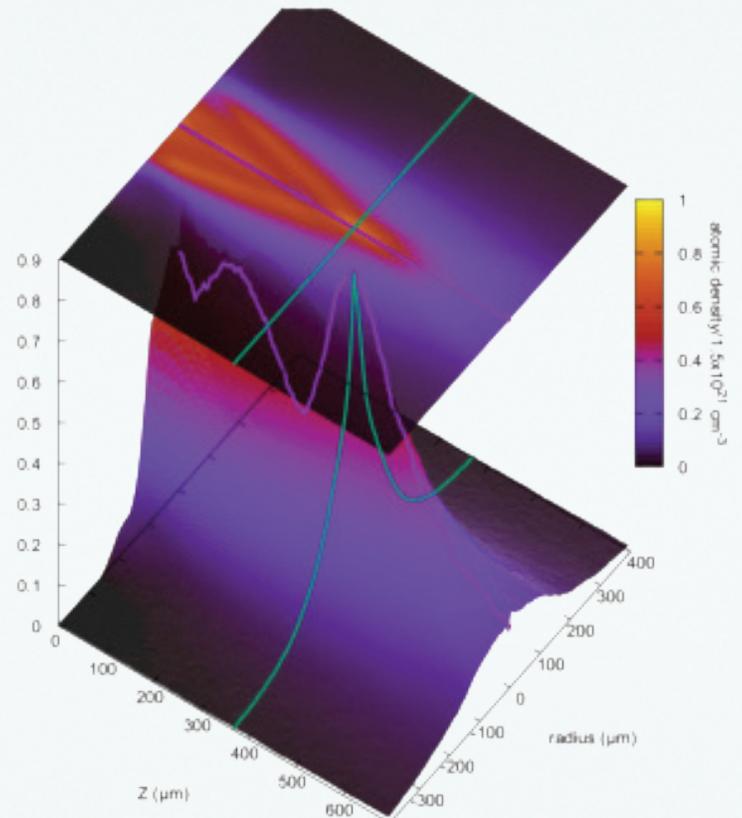
To make it possible for the experimentalist to explore precise interaction regimes and physics, SourceLAB developed a unique class of nozzles associated to precise manufacturing capabilities, that give access to specific plasma shapes and densities.

Each nozzle of the class can be easily fixed on a rapid valve to get the desired output flow.

In particular, our new class SL-Noz-Comp (see specifications), is specially designed to generate sub-100 μm plasma of near-critical density, without external shocks from blades or cooling devices.

Importantly, it produces sub-μm dense plasmas at a larger distance from the nozzle exit than the standard 400 μm sonic nozzle. Therefore the lifetime of the nozzle is significantly increased while ensuring outstanding performances.

SourceLAB can also manufacture specific nozzles from your drawings and we offer characterization services.



This figure represents atomic density map and corresponding projection measured by interferometry at the exit of a typical SL-Noz-Comp nozzle. The backing pressure reads 320 bar.

Performances					
SL-NOZ Class	Physical application	Atomic density range	Thickness	Density gradient characteristic length along gas flow	Density gradient length at jet edges
SL-NOZ-Comp	Ion acceleration	$10^{20} \rightarrow 5.10^{21} \text{ cm}^{-3}$	100 μm	> 1 mm	< 100 μm
SL-NOZ-I	Electron acceleration	$10^{18} \rightarrow 10^{20} \text{ cm}^{-3}$	0.1 -> 1 mm	> 2 mm	< 300 μm
SL-NOZ-II	Astrophysics - shocks	$10^{18} \rightarrow 10^{20} \text{ cm}^{-3}$	1 -> 2 mm	> 2 mm	< 300 μm
SL-NOZ-IV	Atomic physics	$10^{15} \rightarrow 10^{17} \text{ cm}^{-3}$	1 mm	> 2 mm	< 300 μm
SL-NOZ-SLIT	Coherent X-ray amplification (SXRL)	$10^{19} \rightarrow 10^{20} \text{ cm}^{-3}$	2 cm	> 2 mm	< 300 μm