

**Quicker access to  
physics and  
applications**

**LA3NET  
« Scientists go Industry »,  
Berlin**

**17-18/11/14**

**Source** **LAB**

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**Laser Plasma Technologies**

François Sylla, PhD

## Foreword

### Idea 1

- Scientists (do) go Industry

### Idea 2

- Science vs Industry

### Idea 3

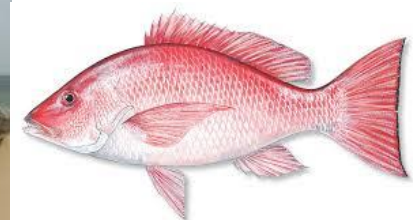
- Drivers: intentions, tastes, opportunities, chances, serendipity...

### Idea 4

- Technological entrepreneurship: exploration at the interface Science-Industry

# Foreground

## Early life in Africa (1982-2000)



# Higher Education

## Scientific foundations (2000-2007)

- Lycée du Parc (Lyon)



- ESPCI ParisTech (Paris)



- Imperial College London



## Afterwards

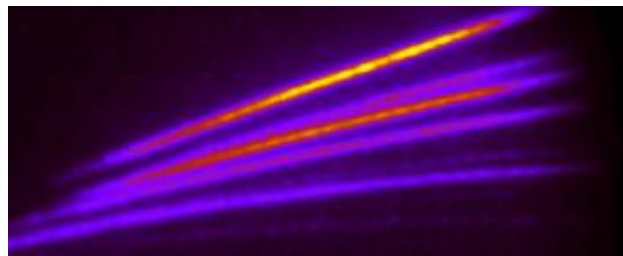
### PhD studies and first entrepreneurial steps (2008-2013)



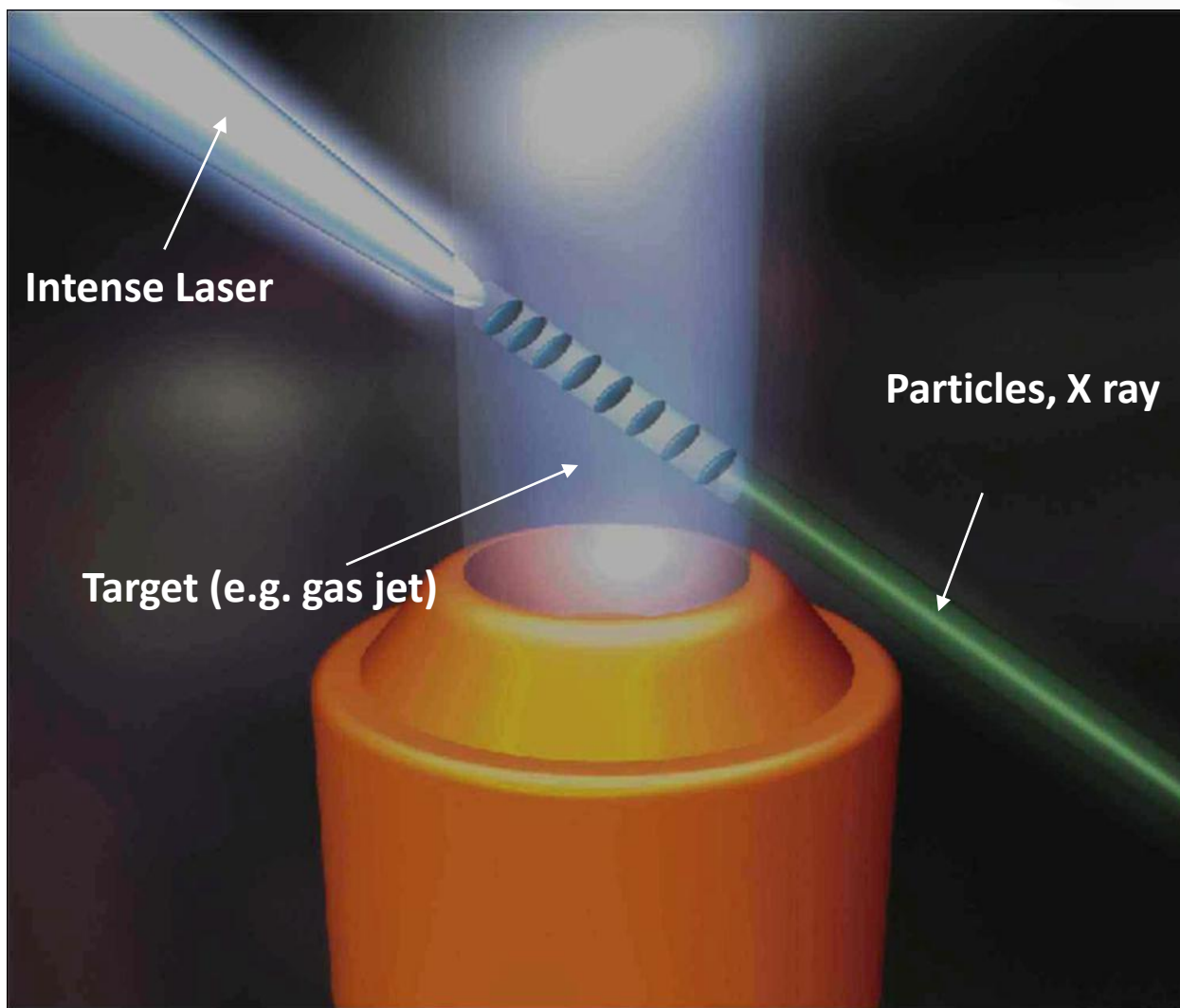
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 **IncubAlliance**  
INCUBATEUR PUBLIC D'ILE-DE-FRANCE

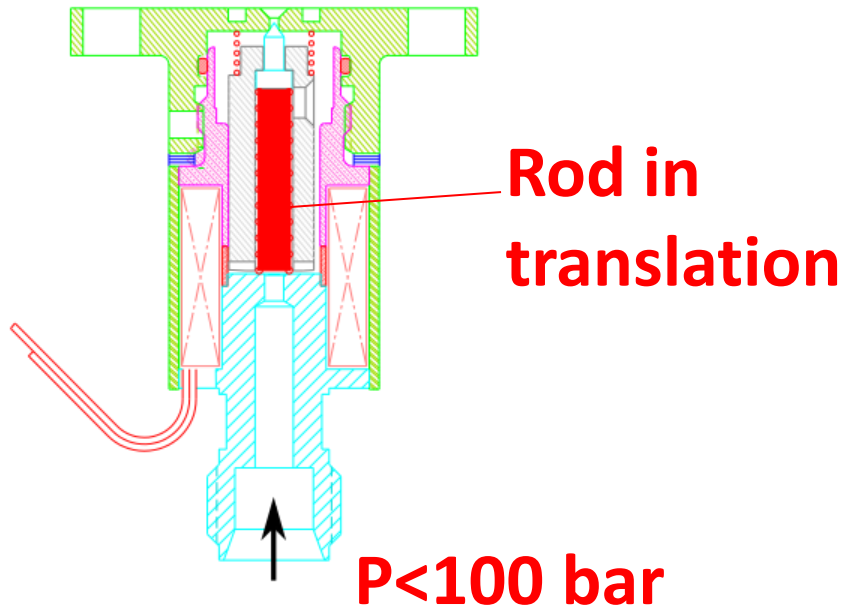
 loa



## Laser Plasma Acceleration

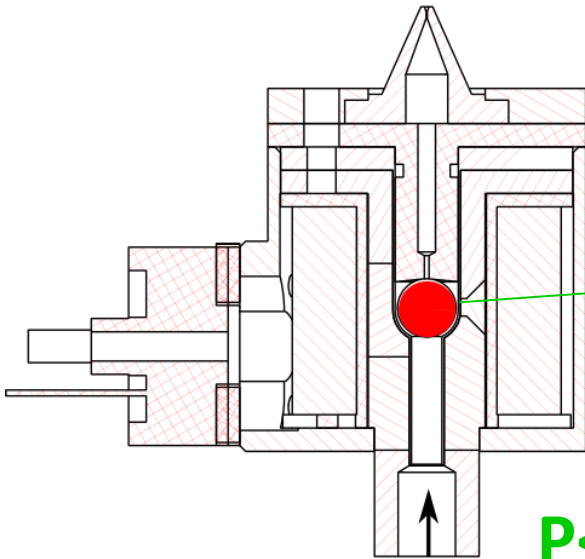
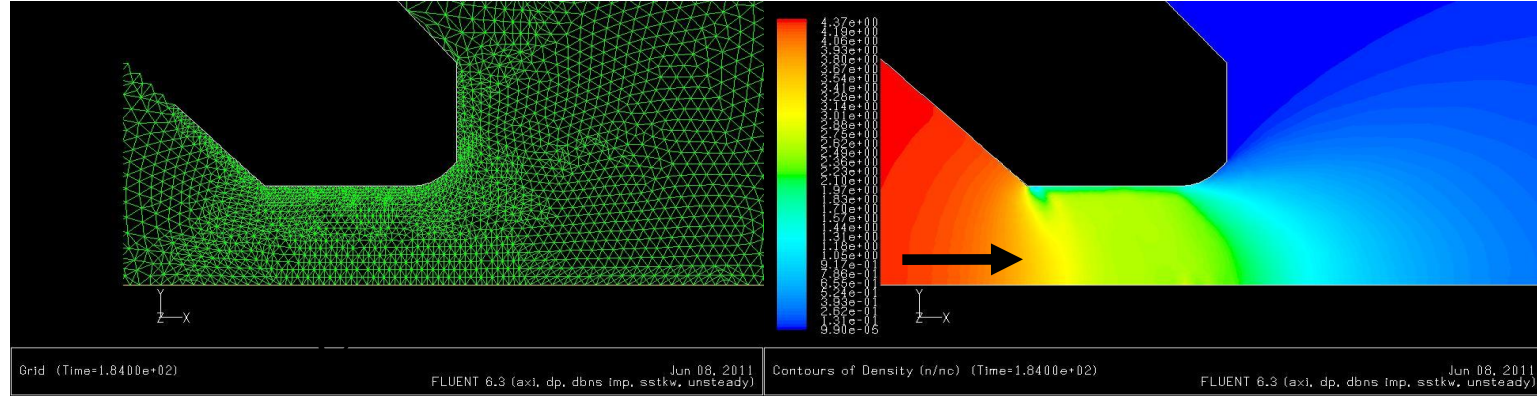
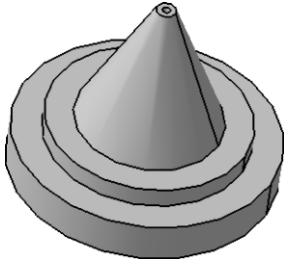


## Innovation process 1/2



## Innovation process 2/2

Ø 200 µm



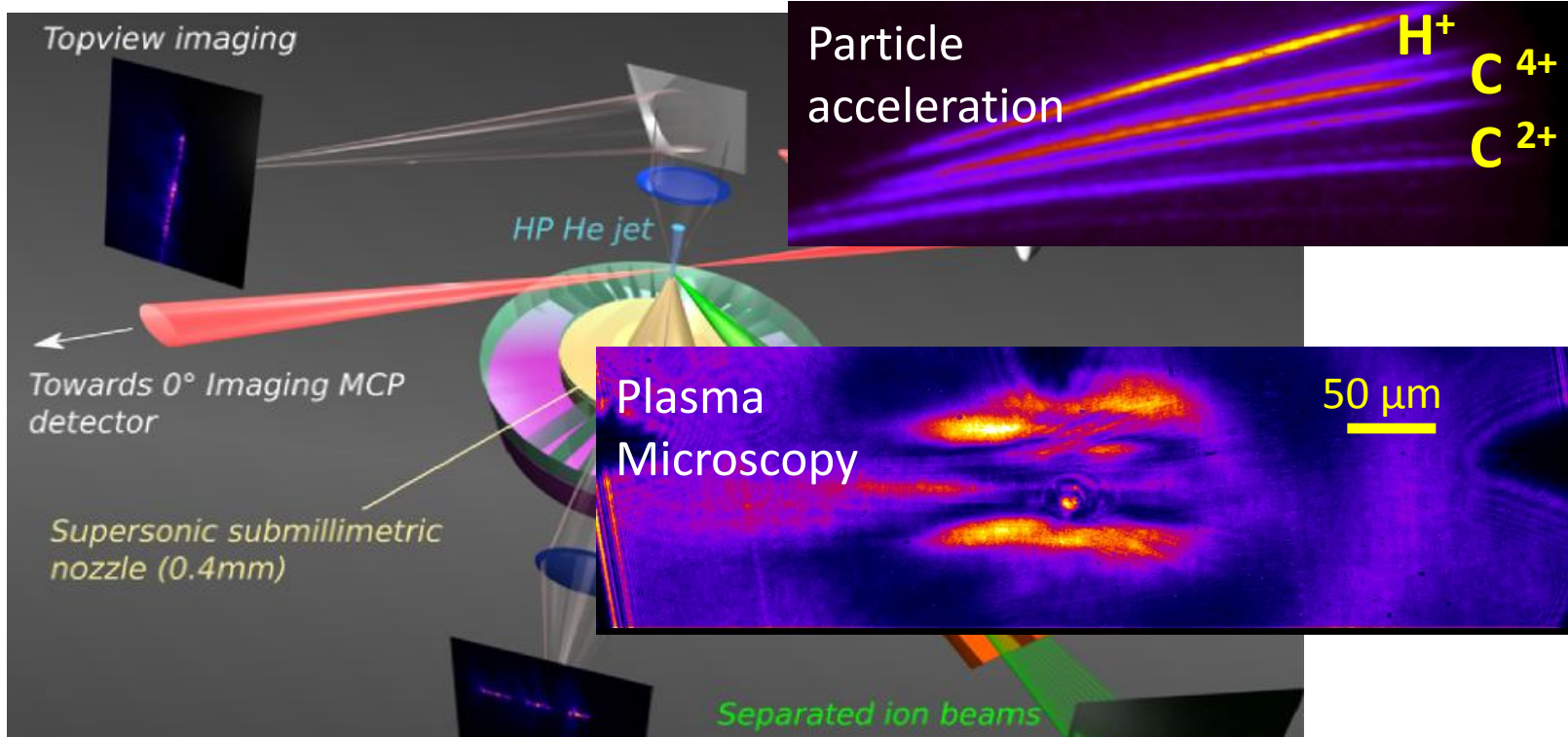
*2 years development*

**Ball in  
rotation**

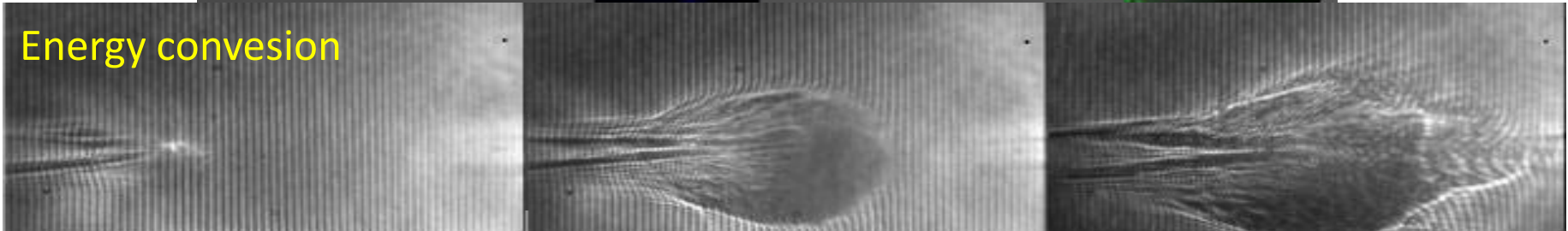
**P<700 bar**



# Implementation

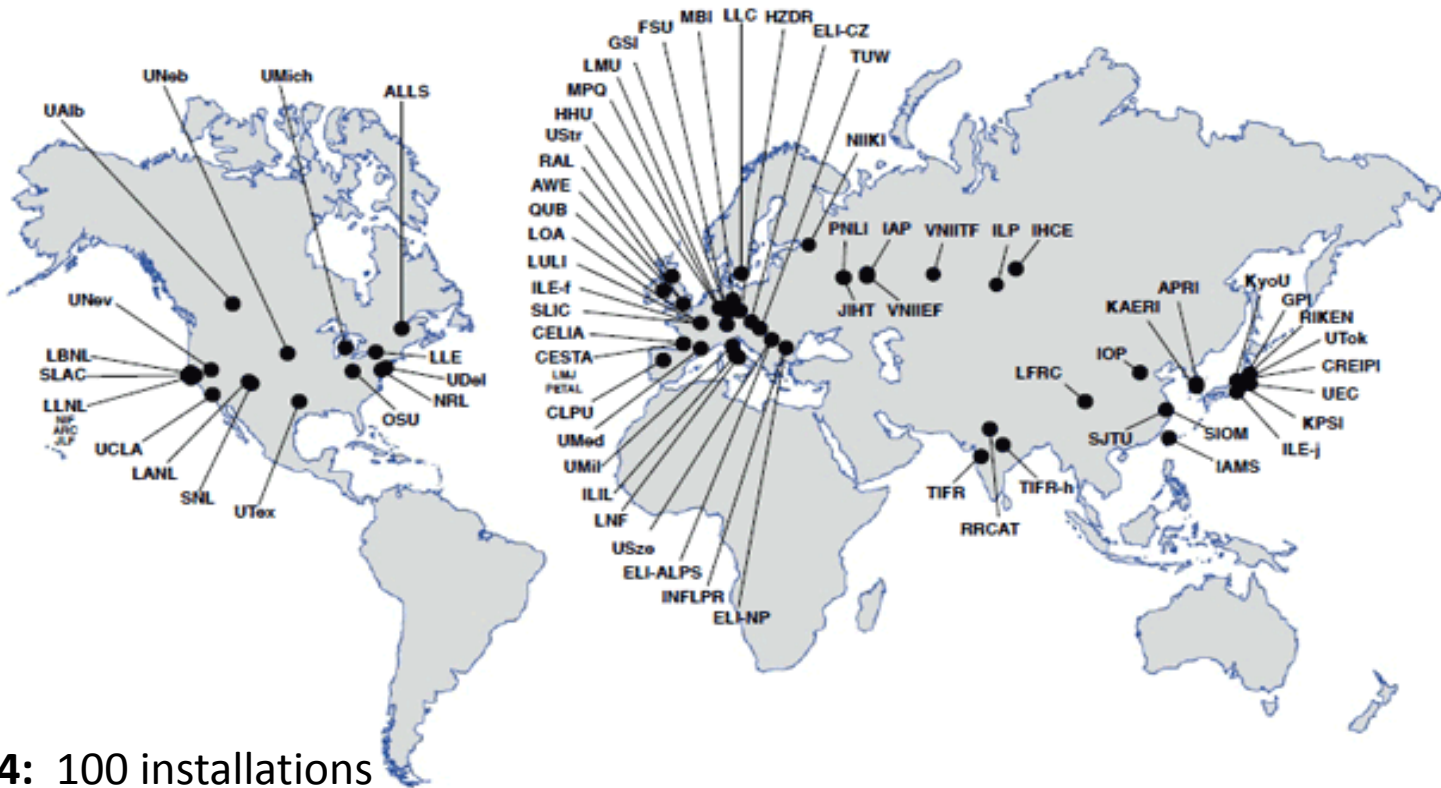


## Energy convesion



# Market

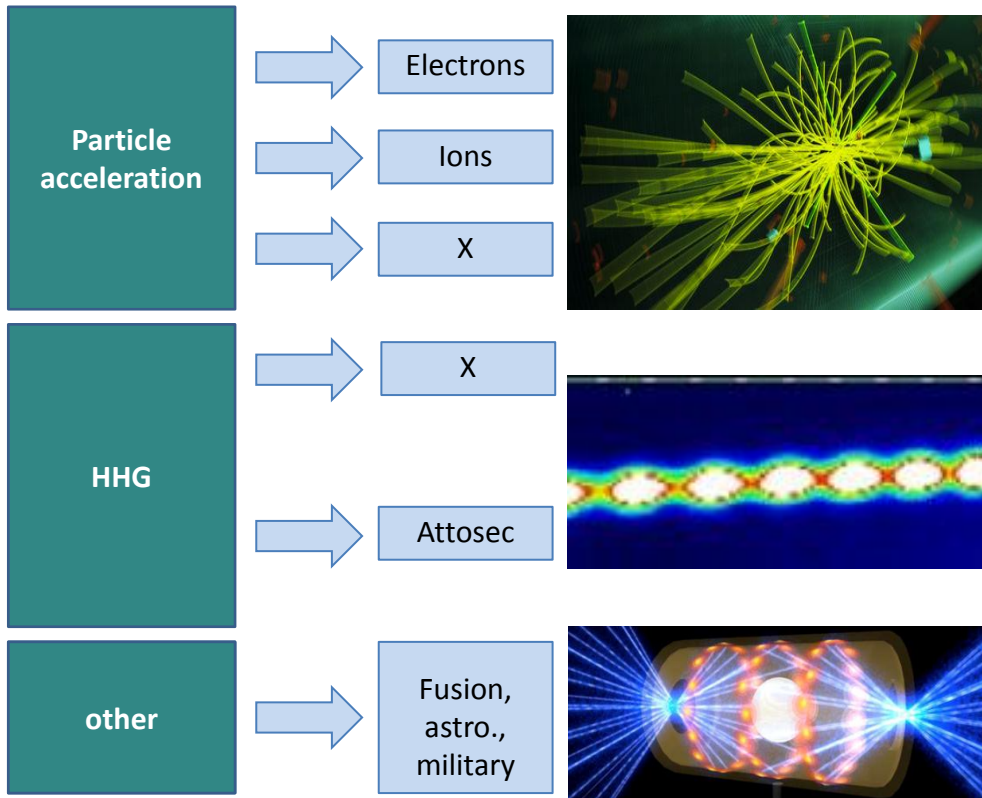
## Laser facilities for Laser Plasma interaction



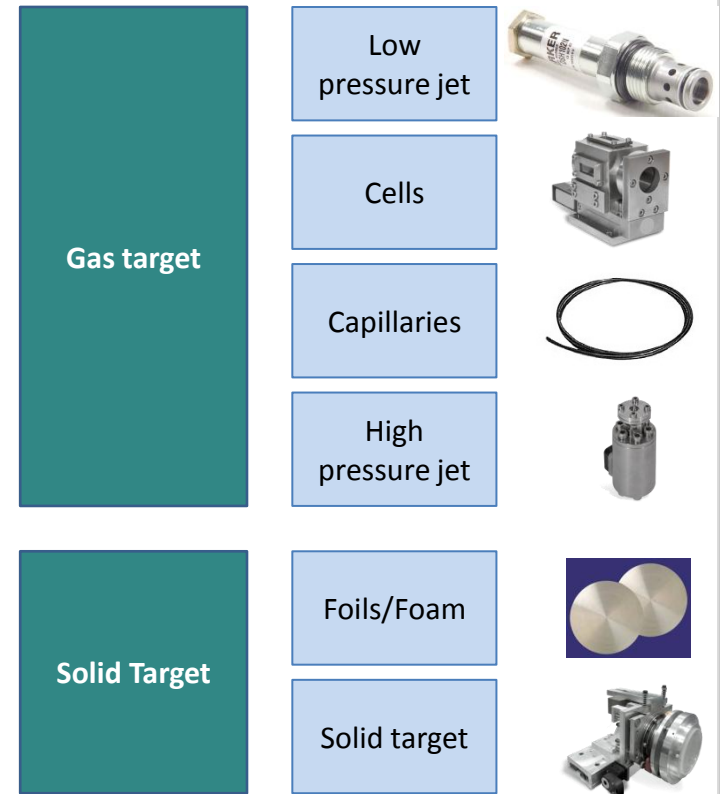
- **2014:** 100 installations
- **2020 :** 150 installations

# Research and targetry 1/2

## Laser Plasma Interaction

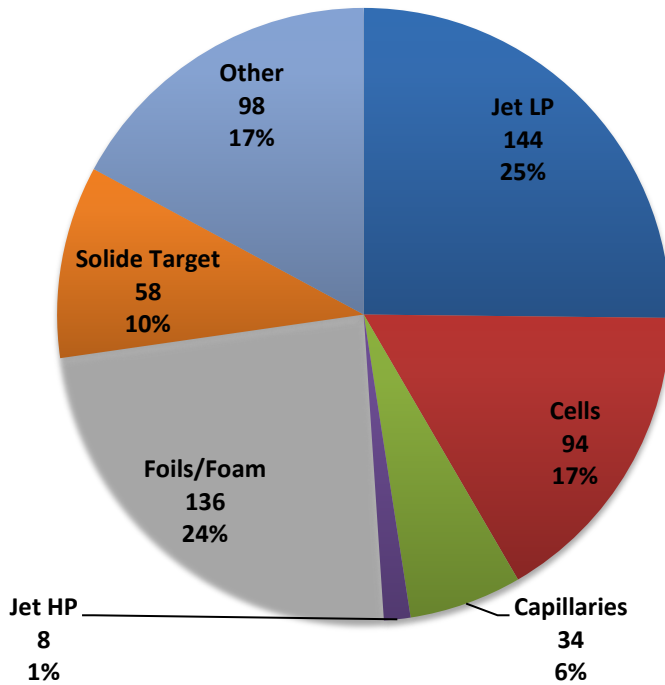


## Targetry

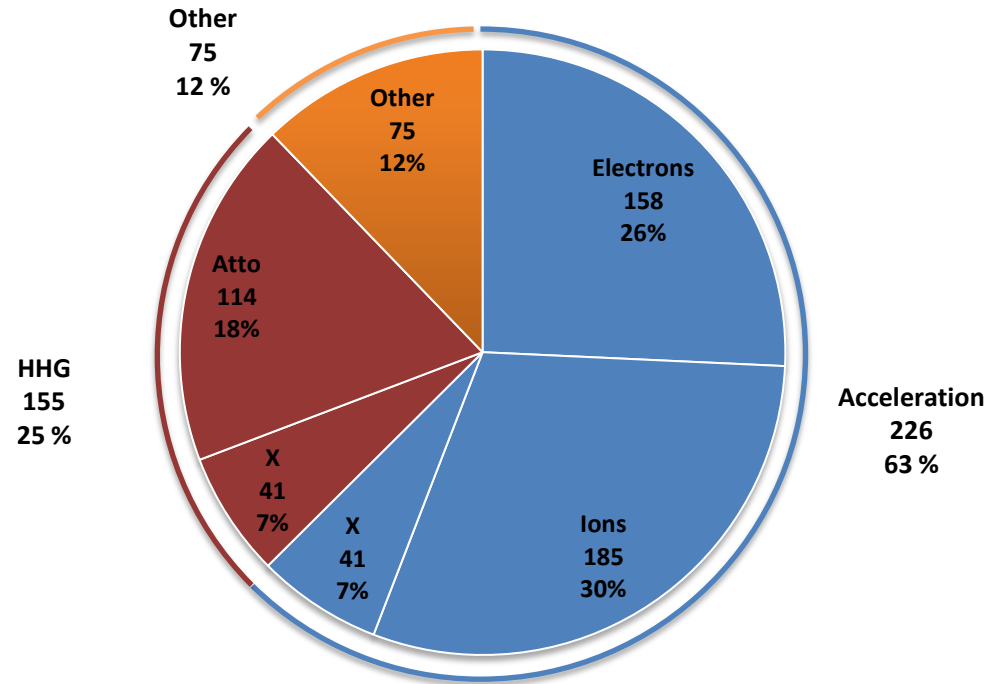


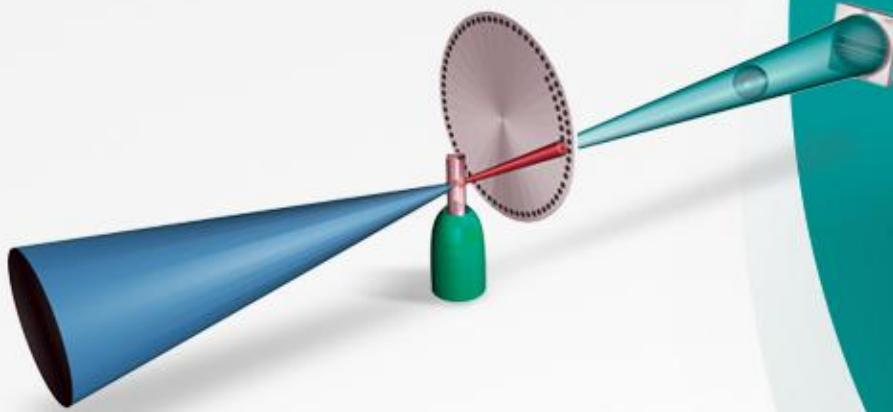
## Research and targetry 2/2

Targetry distribution



Targetry distribution and associated reasearch activities





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Laser Plasma Technologies

# SourceLAB

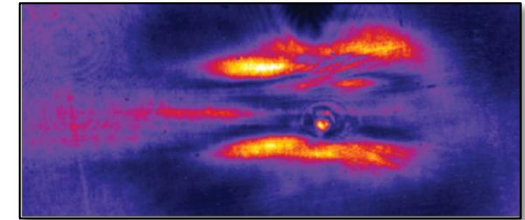
## Solutions for laser-plasma interaction

Innovative laser-plasma  
technology

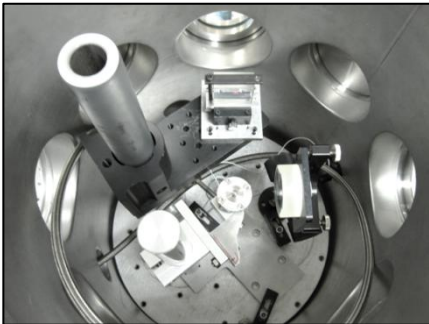
### The Laser plasma company

Established in 2013, SourceLAB is a spin-off company of the Laboratoire d'Optique Appliquée (LOA) in Paris, France.

We mean to deliver targetry systems, sources and services, specially designed to meet your requirements in particle and radiation generation from laser-plasma interaction



### Empowering your Research



Made of former PhD students in laser and plasma sciences, our expert team became aware over the years of experiments that laser temporal contrast and target interaction conditions are key parameters, as crucial as the laser peak power and duration.

We decided to focus our effort on supplying the experimentalists in laser-plasma interaction with a line of relevant products and services, mandatory for successful experiments.

SourceLAB innovates to provide quick and sound solutions of targetry systems, and assists the experimentalists in fulfilling the high expectations in the control of the plasma and interaction conditions.

Our know-how results from our experience along with the scientific achievements of LOA in the field of laser-plasma interaction over the past ten years. It spans from underdense to overdense interaction regimes.

We endeavor with our technology and expertise to accompany closely scientists in exploring new regimes and taking up the great challenges of that thrilling field.

# Innovative Products and Services

With our lines of products and services we provide solutions to your physics and applications

## Targetry - Sources for interaction

Our line of solid and gas targetry products provides you with solutions for:

- Attosecond plasma physics
- Plasma mirror contrast cleaning
- Control of particle injection and energy in Laser Plasma Accelerator schemes
- ...



## Laser filtering solutions

The XPW line of products, optimized to your beam line front end, enables:

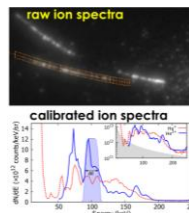
- Energy-scalable high-efficiency laser temporal contrast filtering
- Post-compressing for ultra-short laser pulses
- ...



## Diagnostic and Characterization

Plug-and-play solutions for interaction characterization and laser diagnostic:

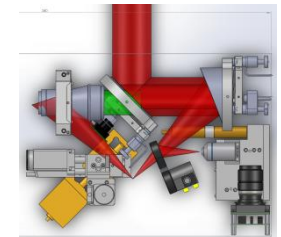
- Plasma and neutral gas density characterization (solution by Phasics, in collaboration with SourceLAB)
- Laser beam interaction suitability diagnostic
- Laser referencing
- ...



## Engineering services

Based on our team unique expertise, we provide services and solutions for your experiments:

- Beam line design and optimization
- Mechanical engineering
- Expertise on laser plasma interaction control
- Training
- ...



## The team

The SourceLAB founders and our team of engineers will provide solutions to your physics

**Dr. François Sylla**



- Solid and gas targetry
- Diagnostic & Characterization
- Engineering services

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**Dr. Aurélien Ricci**



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- Diagnostic & Characterization
- Engineering services

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- Finance & Accounting
- Institutional relations

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## Our partners



# Targetry for Laser-driven Particle Accelerator Sources and Attosecond Science: Second Workshop

What does it take to make laser-driven sources viable tools for science and applications?

**Organizers:** R. Lopez-Martens (LOA) , F. Sylla (SourceLAB), J. Schreiber (LMU) , B. Vodungbo (UPMC)

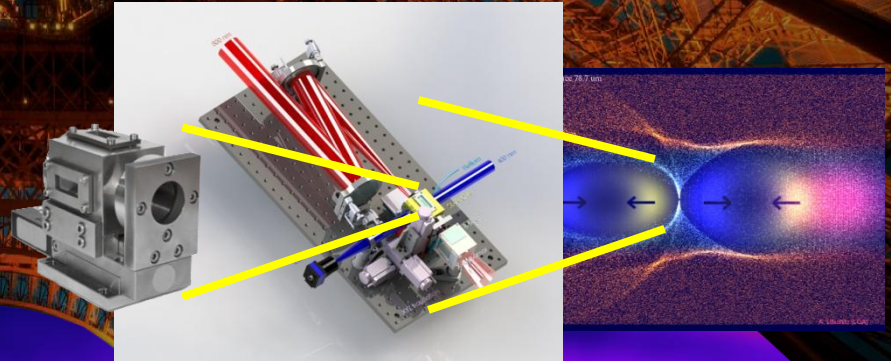
**Contacts:** rodrigo-lopez.martens@ensta-paristech.fr, sylla@sourcelab-plasma.com

**Location:** Cloître des Cordeliers , Paris (France)

**Date:** 20-22 April 2015

## TOPICS

- Innovative targetry: from gases to solids
- Target recycling & debris management
- Secondary particle & radiation sources
- High repetition rate capability
- Integrated plasma diagnostics
- Challenges for future R&D
- Potential for industry



## Required competences

- Autonomy
- Rigor
- Work capacity
- Plannification
- Initiative
- Interpersonal/cultural skills
- Creativity

➤ Common to doctorate degree and entrepreneurship

## Perspectives

- Entrepreneurship ← Sociology of Innovation ← Sociology of organization



Source **LAB**

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Laser Plasma Technologies

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🌐 [www.sourcelab-plasma.com](http://www.sourcelab-plasma.com)