

## **LMJ-PETAL Target diagnostics**

**Optical Diagnostics** 

## NBI

## Near Backscatter Imager

The Near Backscatter Imager is dedicated to analysis of backscattered light outside the focusing cones of quadruplet 28U and 29U. The backscattered energy is collected by an optical system looking at Spectralon® scattering panels inside the chamber, and send to an optical table where Raman and Brillouin ranges are analyzed. The NBI is made of:

- 9 flat scattering panels (Spectralon®, 6.5 m<sup>2</sup>) inside the target chamber, located around the beam ports of quads 28U (33.2° irradiation cone) and 29U (49° irradiation cone);
- an Optical system inserted in a diagnostic port ( $\theta = 90^\circ, \phi = 310, 5^\circ$ ) in front of the scattering panels and made of 4 lenses to collect light and send images to the optical analysis table via 4 bundles of 10 m long optical fibers ;
- an Optical analysis table, with 4 diodes (power & energy), 2 ICCD (integrated images), and 2 streak cameras (time measurements).

A calibration module (a lamp to illuminate the panels) is used to control the panels' reflectivity. This diagnostic completes the FABS measurements.



Characteristics	Spectral range (nm)	Spatial resol. (μm) / Field of view (mm)	Time resol. (ps) / Dynamic (ns)	Setting/ Operational
2 Brillouin power channels	346 - 356	without	250/25	Chamber wall
2 Raman power channels	375 - 750	wiinoui	230723	quads 28U & 29U
Brillouin image	346 - 356	Angle: 2° / 16°		2010
Raman image	375 - 750	Angle: 2° / 16°		2019

April 2016

www-lmj.cea.fr