

XH

A charge-integrating micro-strip detector developed for energy dispersive experiments with hard X-rays

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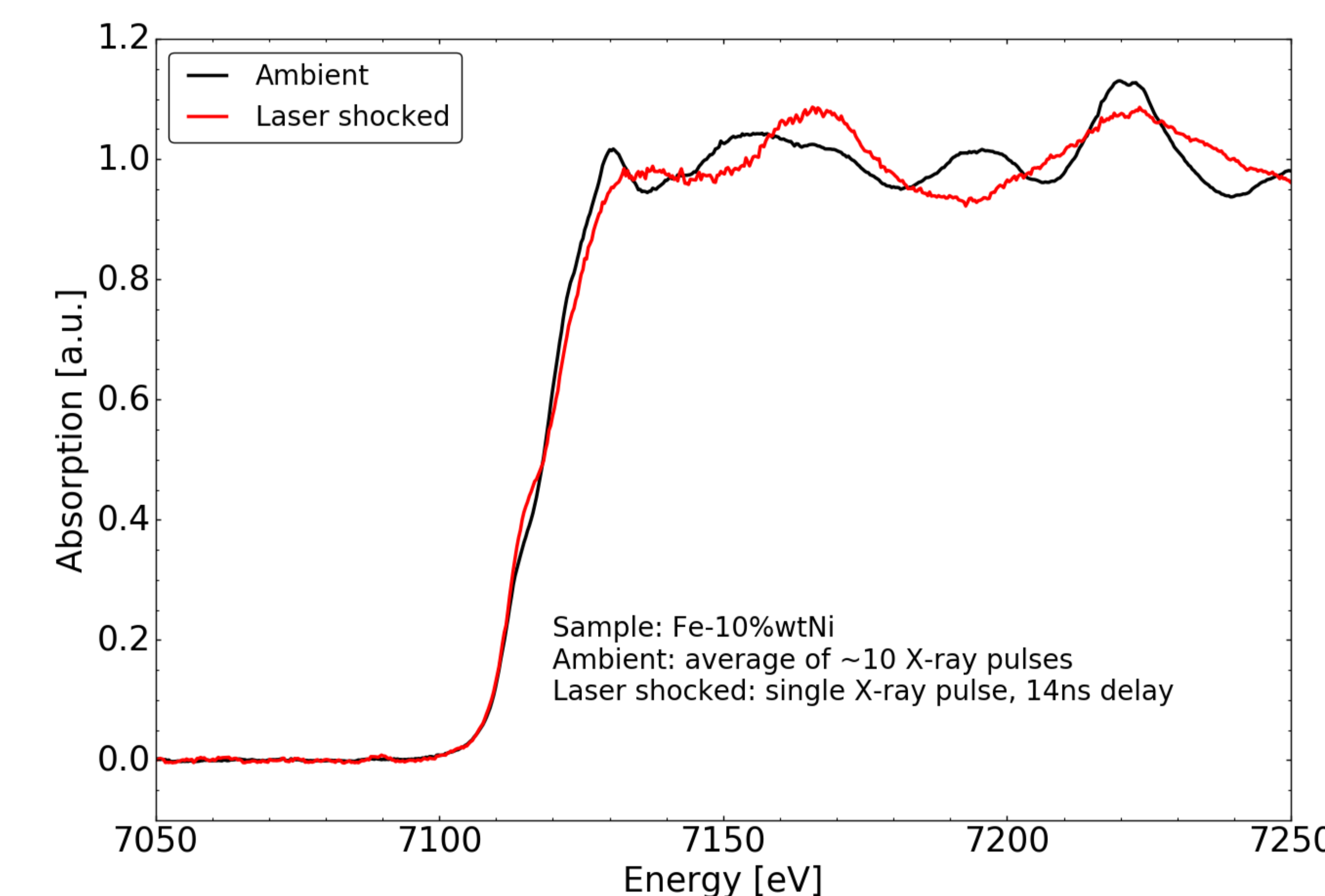
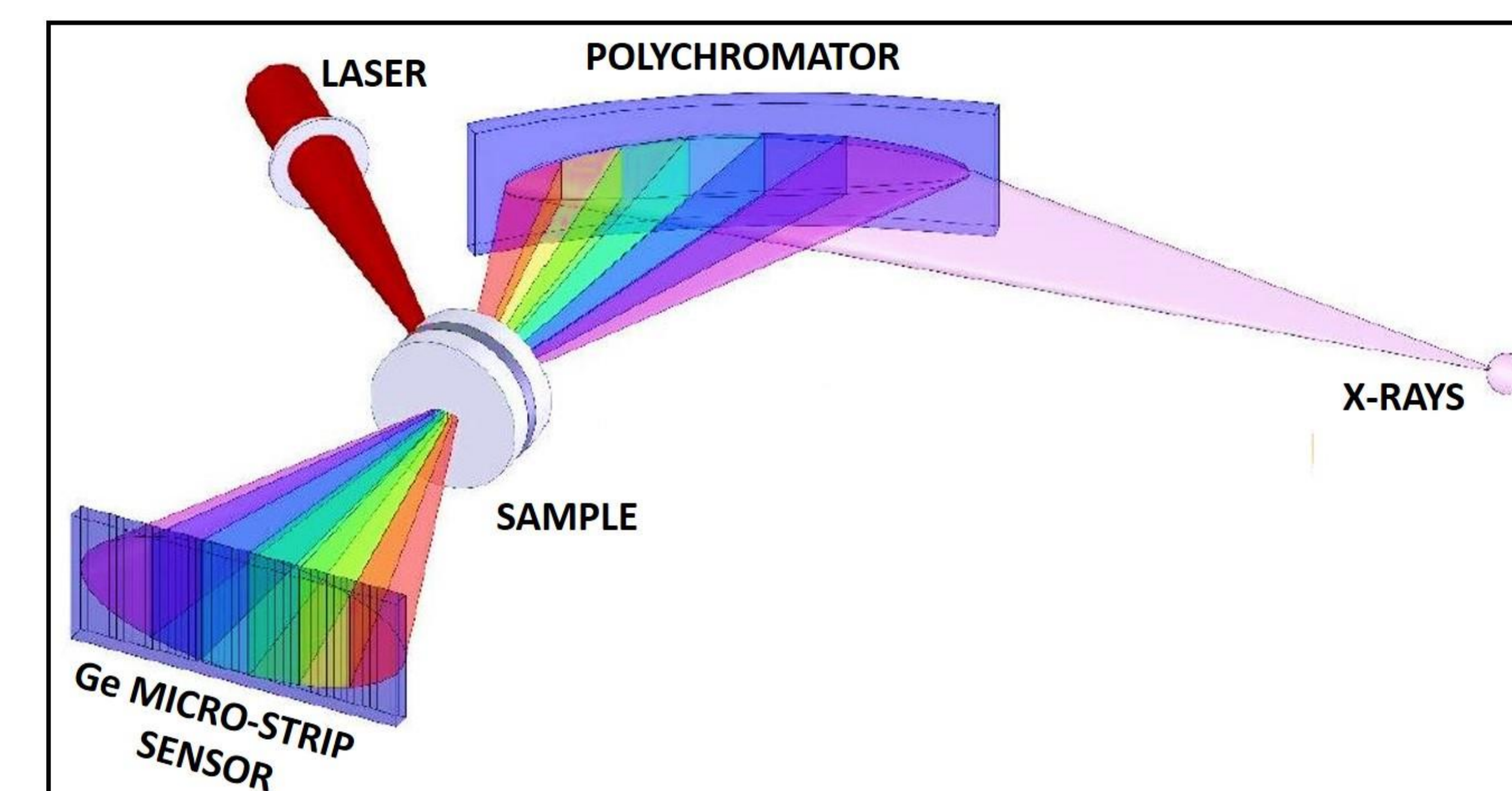


Recently upgraded to increase its technological readiness level.

Currently deployed at the High Power Laser Facility (HPLF) at the ESRF Extremely Brilliant Source (EBS).

Operational modes:

- Film mode: acquisition of multiple sequential frames in stroboscopic experiments.
- Pump-and-probe mode: acquisition of single X-ray flash.



Reference scientific publications:

White-line evolution in shocked solid Ta evidenced by synchrotron X-ray absorption spectroscopy
 C.Pépin et al. Phys. Rev. B, 102 (2020), Article 144102

In situ speciation and spatial mapping of Zn products during Pulsed Laser Ablation in Liquids (PLAL) by combined synchrotron methods
 S.Riech et al. Nanoscale, 12 (2020), pp. 14011-14020

Probing local and electronic structure in Warm Dense Matter: single pulse synchrotron X-ray absorption spectroscopy on shocked Fe
 Torchio R., et al. Sci. Rep., 6 (2016), p. 26402

Reference technical publications:

Prototyping experience with Ge micro-strip sensors for EDXAS experiments
 M.Borri et al. NIMA 1017, 2021, 165800

Characterisation of Ge micro-strip sensors with a micro-focused X-ray beam
 M.Borri et al. NIMA 988, 2021, 164932

Towards a dynamic compression facility at the ESRF
 N.Sevelin-Radiguet et al. J. Synchrotron Rad. (2022). 29, 167-179

First experimental data from XH, a fine pitch germanium microstrip detector for energy dispersive EXAFS (EDE)
 J. Headspith et al. IEEE Nuclear Science Symposium Conference Record, 1-11, 2421-2428 (2007)

Developed in collaboration with:



MIRION
TECHNOLOGIES



diamond

Sensor	
Material	High Purity Germanium (HPGe)
Thickness	750µm-1.5mm
Active area	51mm x 5mm
Number of strips	1024
Strip pitch	50µm
Electronics	
ASIC	X3CHIP, custom made
Integration time	~200ns to 1s
Maximum charge	50 pC per strip
Dead-time	1.2 µs
ADC	50 MHz, 14 bits, 1.25 V
Linearity	≤0.10 (full scale)
Ethernet link	1 Gbps