

## UMF Equipment - Xiton Impress 213 FBG Writing System

### Fiber Bragg Grating Writing System with 213 nm Solid-State Laser Source

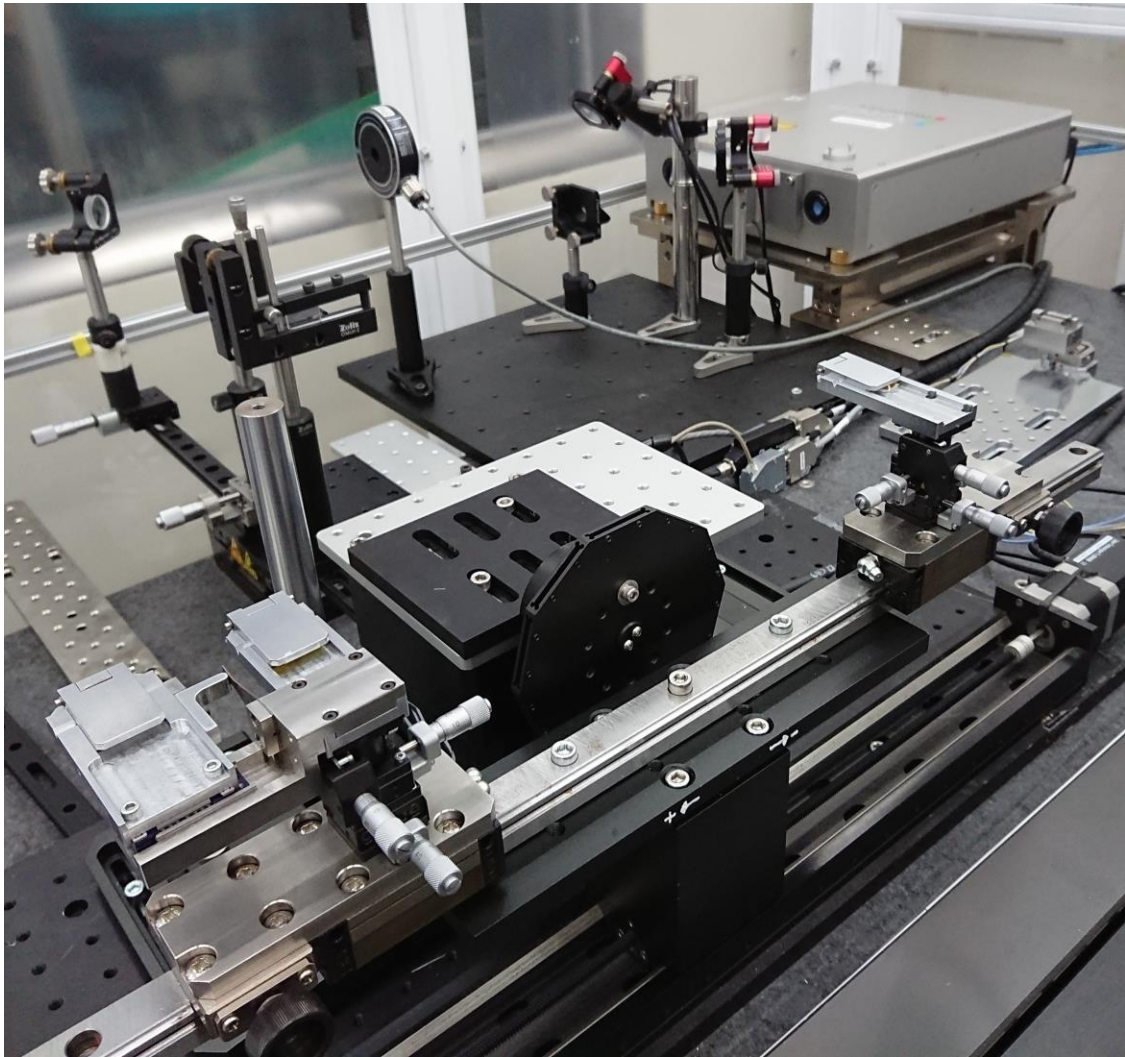
This FBG writing system includes Xiton Impress 213 laser source, Phase Masks, Vertical Stage & Controller (Newport XPS) and XY stage & controller.

The IMPRESS 213 laser source is a high repetition rate solid-state diode pumped Q-switched laser with an emission wavelength of 213 nm. The Gaussian TEM<sub>00</sub>-mode laser beam is the well-established workhorse for fiber Bragg grating (FBG) production. It is a real energy saver and can be easily temperature-controlled by a cooling system. In combination with the space saving footprint, operation costs are kept at a minimum.

Specification of IMPRESS 213 Laser Source: Wavelength: 213 nm  
Average Power: 150 mW  
Pulse Duration: < 7 ns  
Energy per Pulse: >15 uJ  
Repetition Rate: 0.1-30kHz

The main application of this system is to write FBG sensors. In 2006, the world's first smart railway monitoring system was developed. This platform is based on FBG sensing network to monitor the vibration of all trains traveling along the KCRC's East Rail. The system has been running successfully, saving millions of dollars in maintenance costs for MTR. MTR approved funding for installation of more FBG-based railway monitoring systems to monitor all metro lines in Hong Kong. In 2010, a structural health monitoring system was developed, comprises of more than 200 FBG sensors and over 100 km of optical fibre for the measurement of strain, temperature, vibration, and inclination of the 610-m tall Canton Tower in Guangzhou. These R&D activities have attracted considerable international intention.

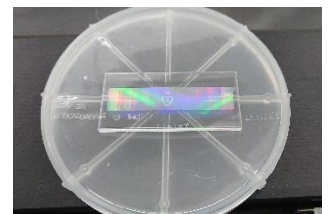
Please refer to <http://xiton-photonics.com/impress-213.html> for further details of the laser system.  
For any enquiry, please contact Ms. Pendency Ho (Tel: 2766 7154; Email: [pendy.ho@polyu.edu.hk](mailto:pendy.ho@polyu.edu.hk)).



Setup of Xiton Impress 213 FBG Writing System



Controller of Xiton Impress 213 Laser



Phase Mask