



International Conference on X-ray Optics and Applications 2017: XOPT'17

Development of X-ray optics for DLSRs

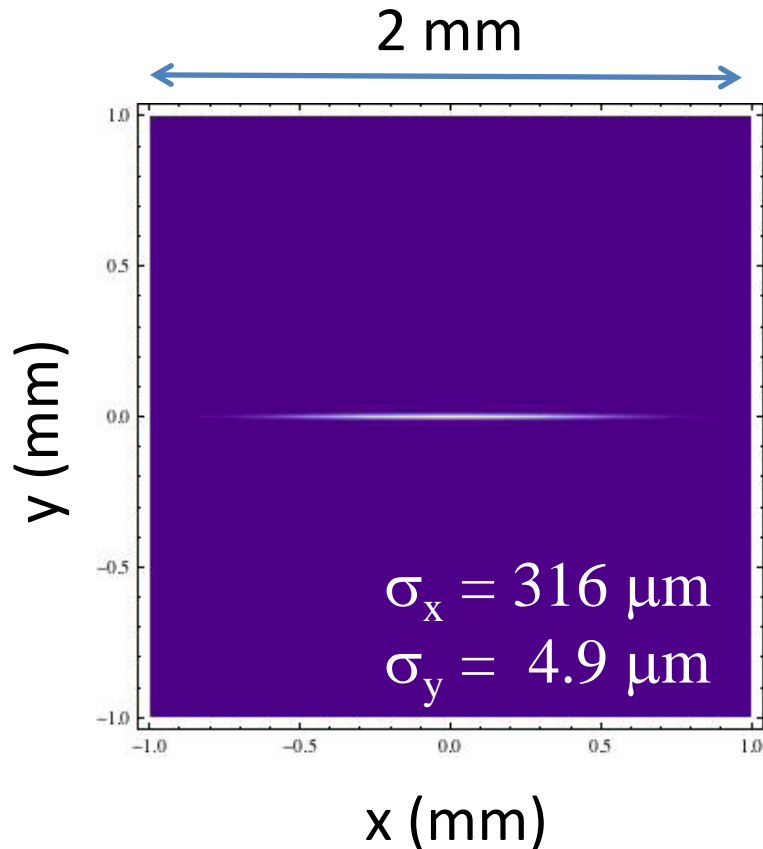
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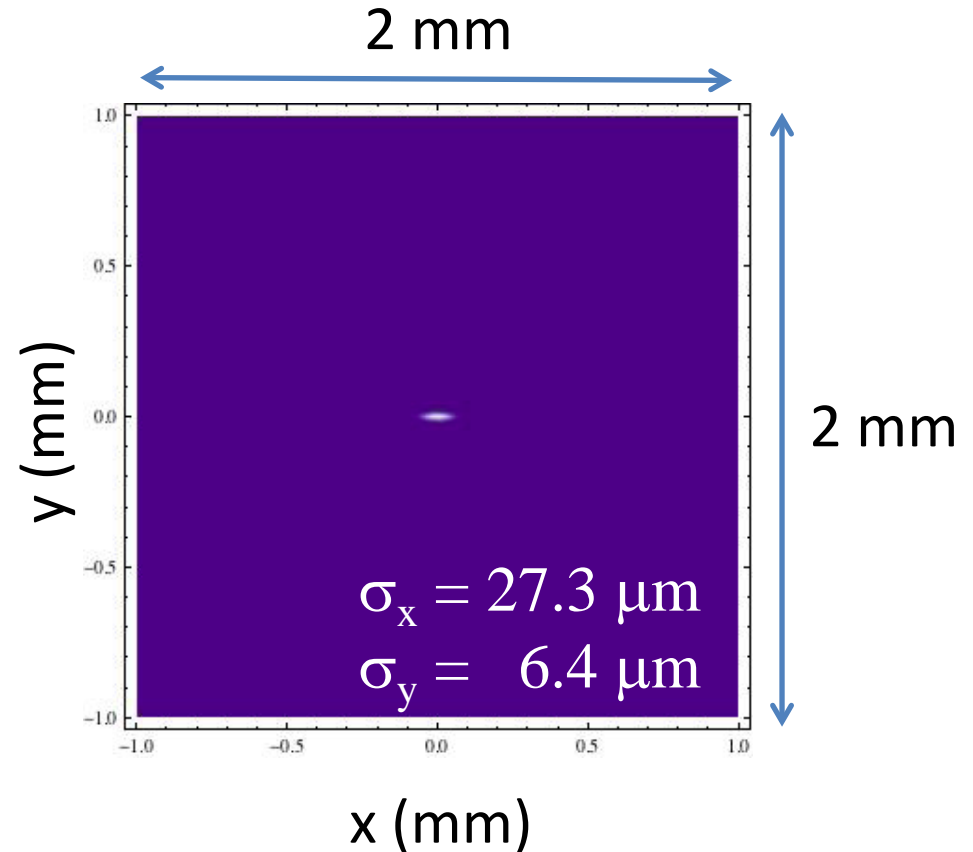
April 21, 2017 @Pacifico Yokohama

Spatial profile of light source

SPring-8



SPring-8-II

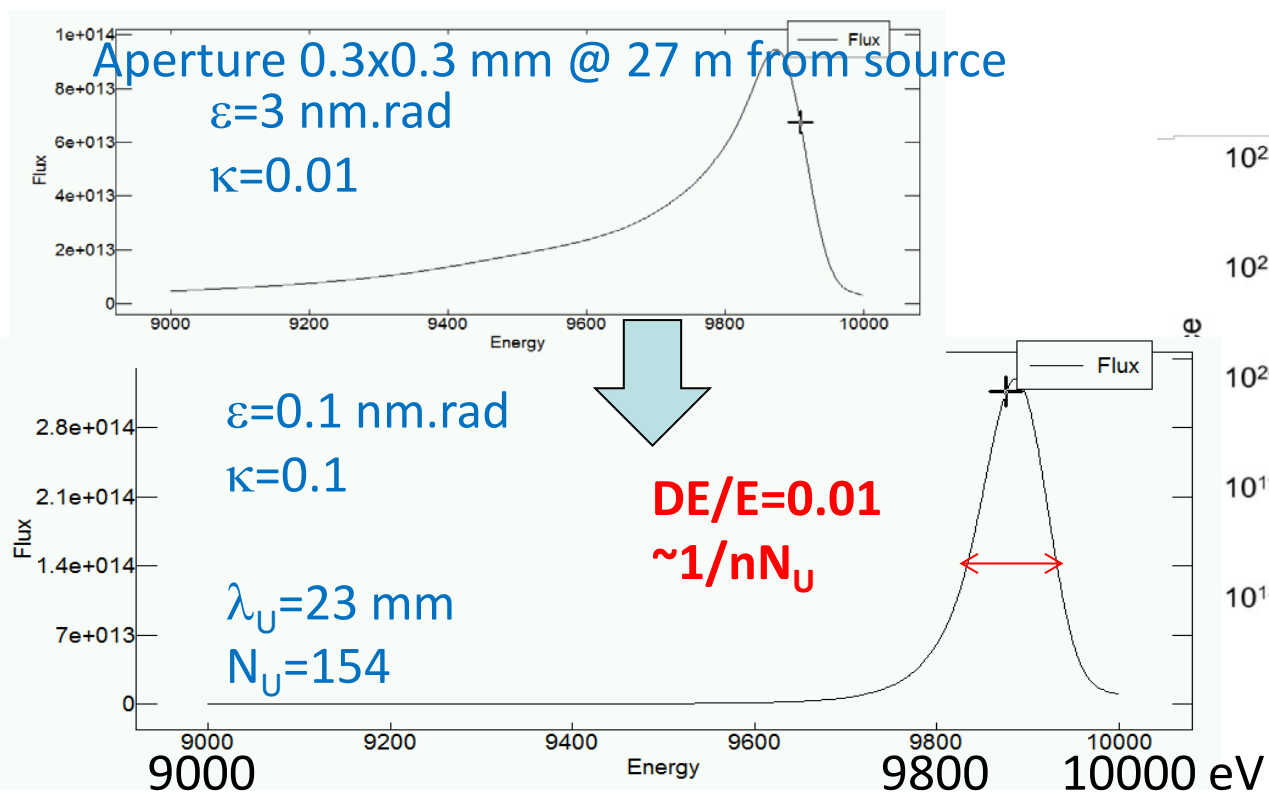


- Generation of ultrabright nano beam by direct imaging of light source
- Generation of high-energy pink beam with extreme intensity

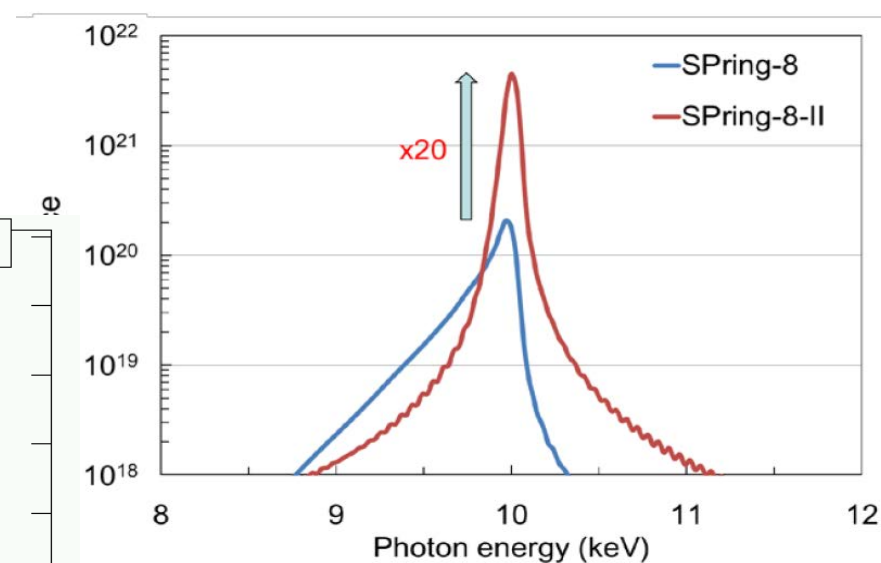
High-energy pink beam

- Reduction of horizontal source size → **ideal undulator radiation**
- Off-axis (low-energy) component can be easily eliminated with a slit
- **Pink beam (b.w. ~1 %) without low-energy tail**
- High impact due to drastic increase of flux (**x100 or more**), especially high-energy region above 30 keV (imaging, high-pressure, pdf etc.)

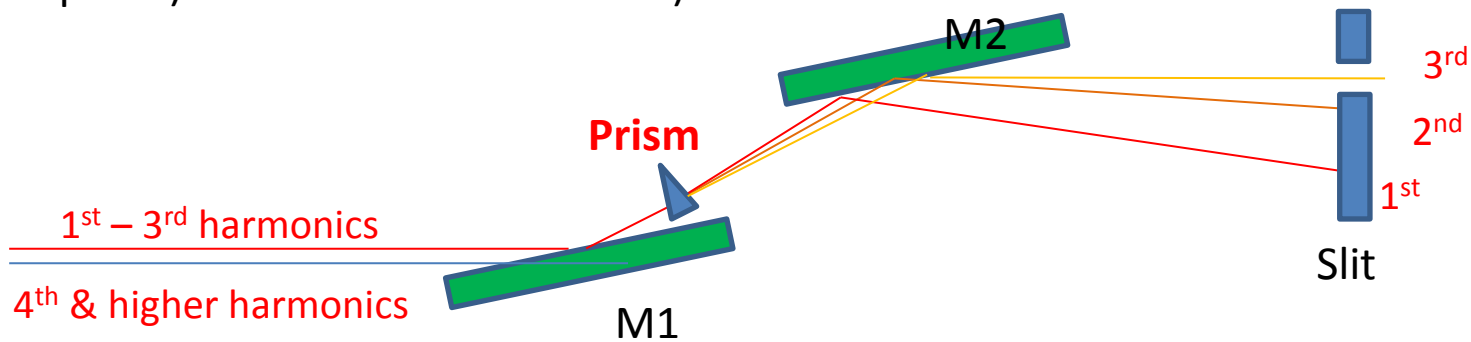
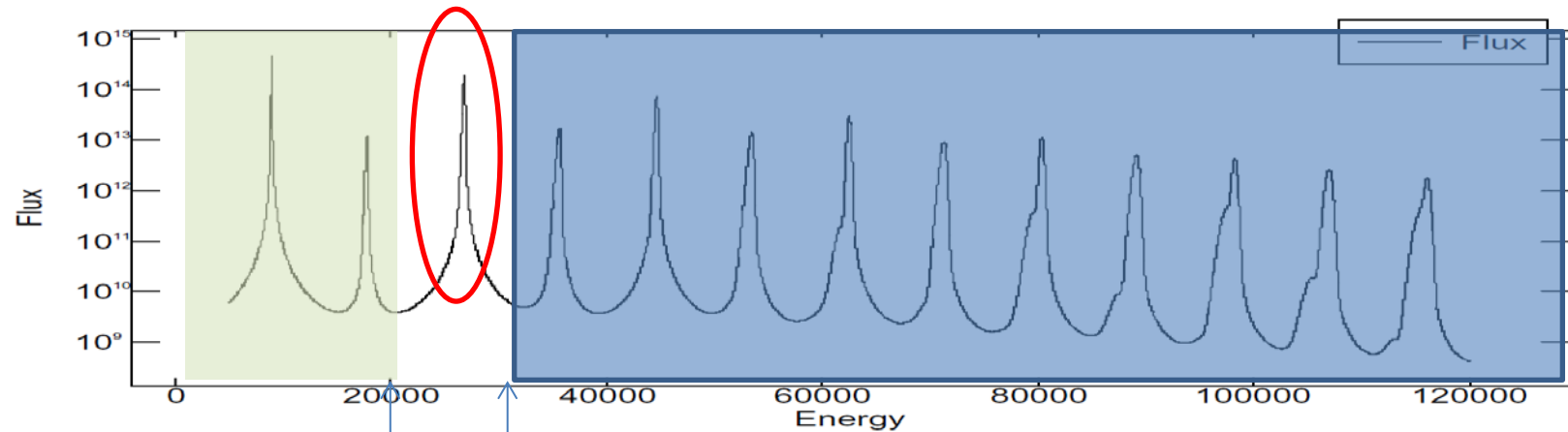
e.g., Pink beam users at SACLA (b.w. 0.5%) : 74 %



(incl. PX, CDI, Shock-XRD)



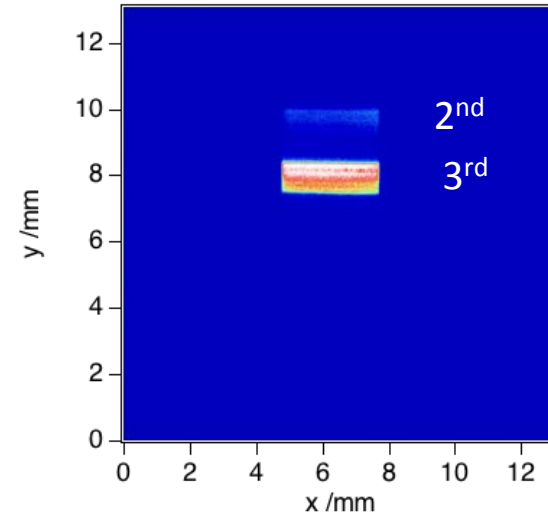
Beamline optics for extracting specific harmonic: Combination of TR-mirror & harmonic separator with refractive prism



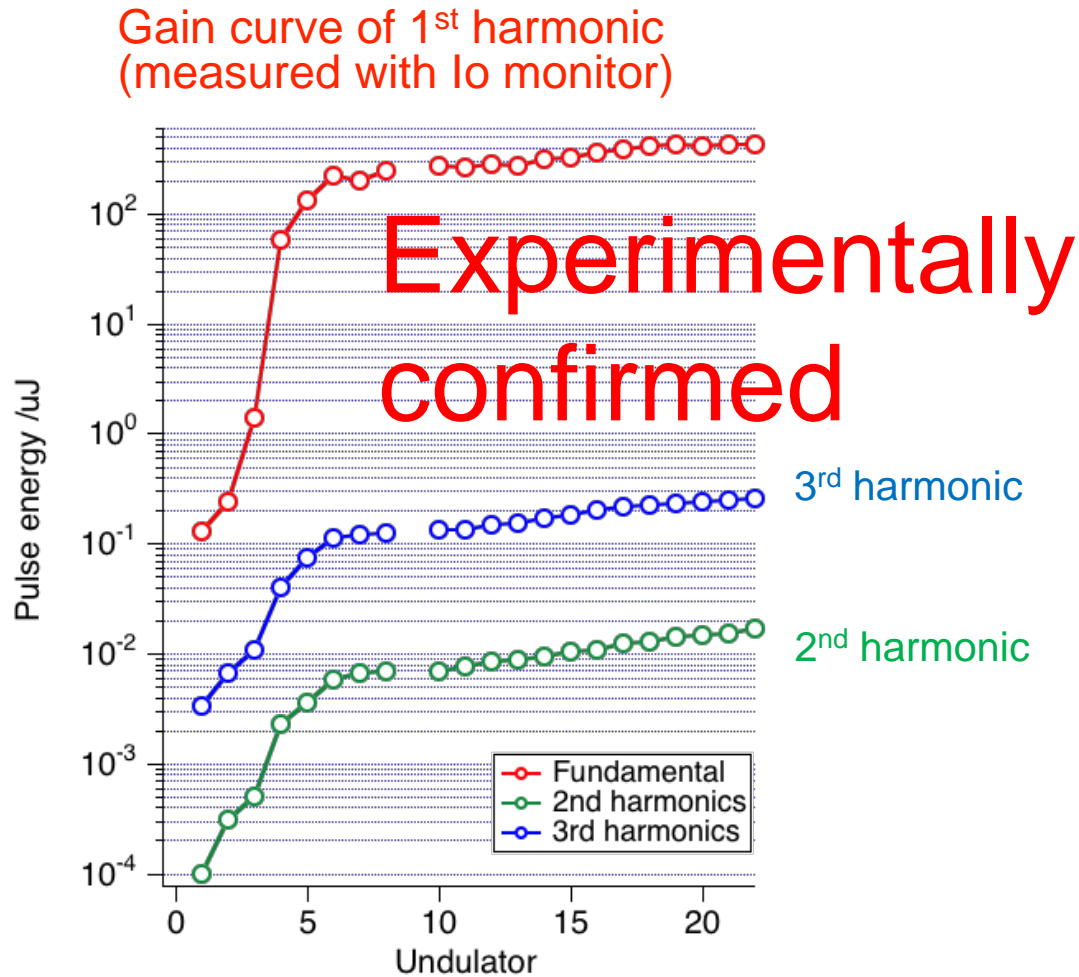
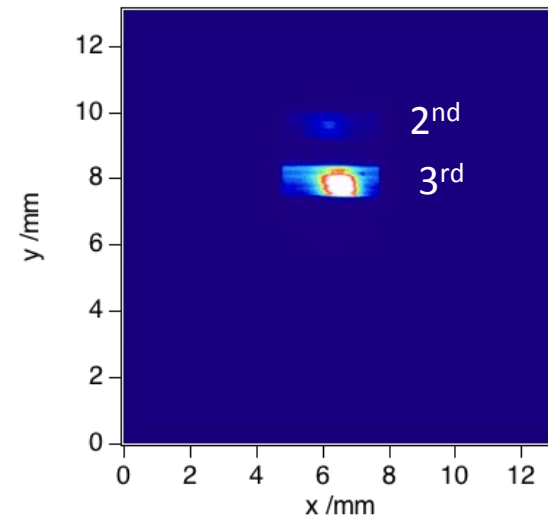
Separation is easier for lower order

Simultaneous measurements of gain curves of three harmonics

2 undulator segments
(HH: spontaneous radiation)



4 undulator segments
(HH: lased)



Inoue et al (in preparation)