Central Japan Synchrotron Radiation Research Facility Project

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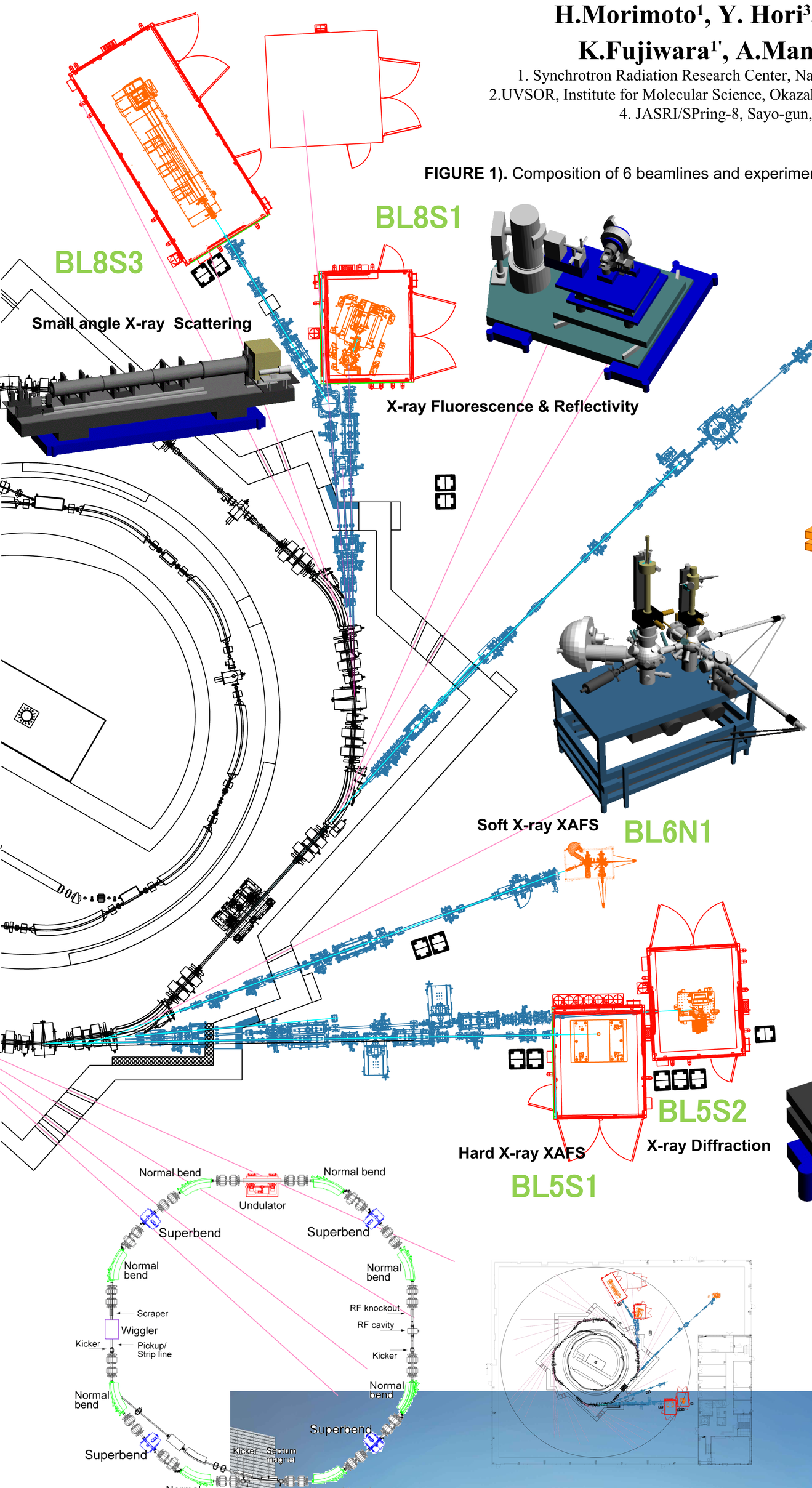
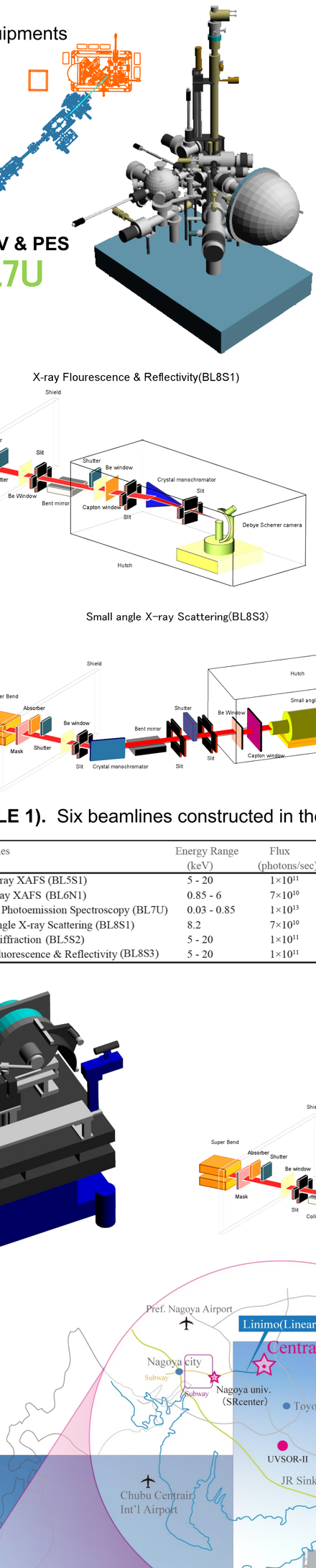
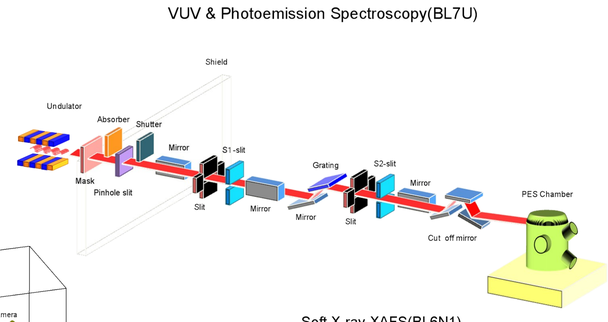
Summary

Nagoya University has proposed a project of a new small synchrotron radiation facility for hard X-rays since 1991. The project is now developed to “Central Japan Synchrotron Radiation Research Facility” as the principal facility of the project of Aichi prefecture “Knowledge Hub” to establish a new research center for technological innovation.The key equipment of the acility is a compact electron storage ring which can supply hard X-rays.
The specifications of the project are as follows. the energy of the stored electron beam is 1.2 GeV, the circumference 62.4 m, and natural emittance 53 nm-rad.The top-up operation can be used in several years.
Now, six Beamlines are under construction in the first phase.Those are Beamlines for a hard X-ray XAFS, a soft X-ray XAFS, a soft X-ray to ultraviolet spectroscopy,a small angle scattering, X-ray diffraction, and an X-ray fluorescence analysis.
The service will start from the end of 2012.

FIGURE 1). Composition of 6 beamlines and experimental equipments







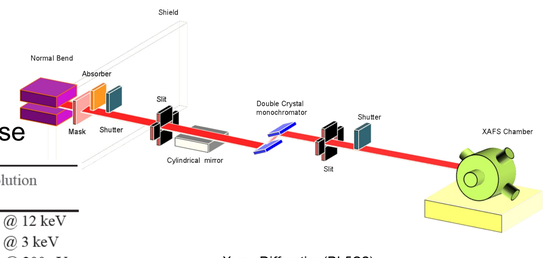
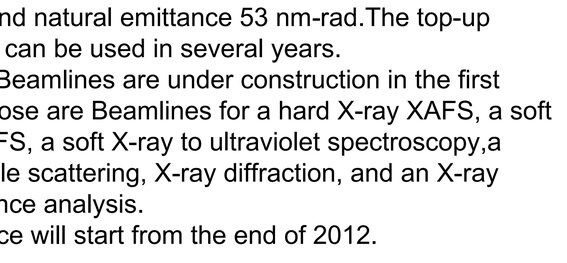


TABLE 1). Six beamlines constructed in the first phase

Beamlines	Energy Range (keV)	Flux (photons/sec)	Energy Resolution (E/ΔE)
Hard X-ray XAFS (BL5S1)	5 - 20	1×10^{11}	7,000 @ 12 keV
Soft X-ray XAFS (BL6N1)	0.85 - 6	7×10^{10}	2,000 @ 3 keV
VUV & Photoemission Spectroscopy (BL7U)	0.03 - 0.85	1×10^{13}	10,000 @ 200 eV
Small angle X-ray Scattering (BL8S1)	8.2	7×10^{10}	2,000 @ 8.2 keV
X-ray Diffraction (BL5S2)	5 - 20	1×10^{11}	7,000 @ 12 keV
X-ray Fluorescence & Reflectivity (BL8S3)	5 - 20	1×10^{11}	2,000 @ 12 keV



Rendering in building

FIGURE 2). Externals of the SR facility and appearance of construction

Feb 26,2011