1 Experimental Proposals

1-1 Scientific Proposals

The Photon Factory accepts experimental proposals submitted by researchers mainly at universities and research institutes inside and outside Japan. The proposals are reviewed by the PF Program Advisory Committee (PF-PAC), and those that are favorably recommended are formally approved by the Advisory Committee for the Institute of Materials Structure Science. The number of accepted proposals over the period 2002-2013 is shown in Table 1, where S1/S2, U, G, and P denote Special, Urgent, General and Preliminary proposals, respectively. The number of current G-type proposals each year has exceeded 800 for the past few years. A full list of the proposals effective in FY2013 and their scientific output can be found in Part B of this volume.

S-type proposals are divided into two categories, S1 and S2. S1 proposals are self-contained projects of excellent scientific quality, and include projects such as the construction and improvement of beamlines and experimental stations which will be available for general users after the completion of the project. S2 proposals are superior-grade projects that require the full use of synchrotron radiation or a large amount of beam time. Table 2 lists the S-type projects effective in FY2013. The current status and results to date of S1 and S2 proposals must be reported at the PF Symposium held

Table 1: Number of proposals accepted for the period 2002-2013.

Category	FY2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
S1	0	1	1	0	1	0	0	0	0	0	0	0
S2	3	2	0	3	6	1	4	6	3	2	4	5
U	3	2	4	0	1	7	3	2	2	0	4	1
G	321	318	382	310	386	403	402	397	407	415	454	447
P	16	9	13	10	22	14	14	14	16	11	18	18

Table 2: List of S-type proposals effective in FY2013.

Proposal No.	Spokesperson	Title
2013S2-001	T. Matsushita KEK-PF	Development of time-resolved X-ray reflectometory and its applications
2013S2-002	Y. Murakami KEK-PF	Synchrotron radiation research on element strategy project_electronic materials: The study of functionalities in light element anion systems
2013S2-003	Y. Takahashi Hiroshima Univ.	Development of sustainable science by scanning transmission X-ray microscopy (STXM)
2013S2-004	K. Amemiya KEK-PF	Exploration of spintronics materials by soft X-ray polarization switching
2013S2-005	Y. Nagashima Tokyo Univ. of Sci	Laser spectroscopy of positronium negative ions and its applications
2012S2-001	T. Takahashi Tohoku Univ.	Quantum phenomena of Dirac fermion systems studied by high-resolution angle-resolved photoemission spectroscopy
2012S2-004	A. Waseda AIST	Crystal evaluation of silicon crystals for the determination of the Avogadro constant
2012S2-005	H. Nakao KEK-PF	Materials structure science by resonant soft X-ray scattering under external field
2012S2-006	J. Yoshinobu Univ. of Tokyo	Physical chemistry at surface and interface of energy-conversion materials using VUV/SX SR spectroscopies
2011S2-003	M. Oshima Univ. of Tokyo	Operando analysis of green nano-device structures by high-resolution electron spectroscopy

at the end of every Japanese fiscal year. The scientific output of S1 and S2 proposals is presented in the Highlights of Part A and in the Users' Reports of Part B of this volume.

Proposals are categorized into five scientific disciplines, and reviewed by the five subcommittees of PF-PAC: 1) electronic structure, 2) structural science, 3) chemistry and new materials, 4) life science I (protein crystallography), and 5) life science II (including soft matter science). Figure 1 shows the distribution by research field of the proposals accepted by the subcommittees in FY2013.

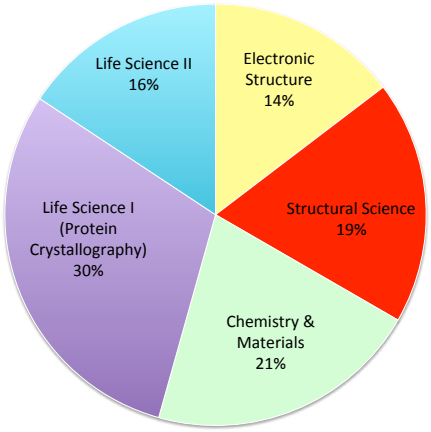

Figure 1: Distribution by scientific field of experimental proposals accepted in FY2013.

1-2 Industrial Proposals

The S, U, G, and P-type proposals are opened for nonproprietary industrial research by limited companies that can apply for the Grant-in-Aid for Scientific Research. Besides these, 41 proprietary industrial projects (Y-type) and 27 nonproprietary collaborative studies with private companies (C-type) were conducted.

Thirteen trial-use programs for industrial applications are carried out with the financial support of a MEXT project, the Open Advanced Research Facilities Initiative. Among these, nine are newly approved and four are continued from FY2012.

1-3 Statistics of the Proposals

The number of users, for all types of proposals, has reached 3,391. Although the number of experimental stations has decreased, the approved scientific proposals and number of users have increased annually, as shown in Fig. 2. This indicates a high and increasing demand for synchrotron radiation and can be attributed to continuous improvements in the storage rings, beamlines, and experimental stations. The synchrotron has become one of the most important research tools for carrying out advanced science experiments and developments. About 20% of the proposals are conducted by new spokespersons, which indicates that the Photon

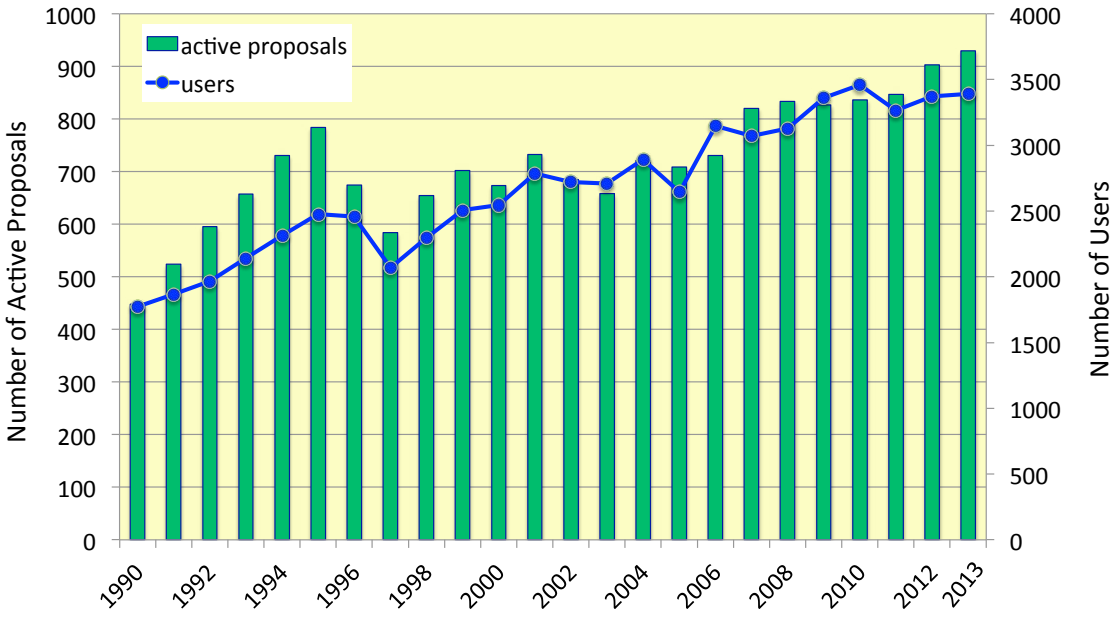

Figure 2: Number of registered PF users and scientific proposals over the period 1990-2013.

Factory is open to public academic scientists. Figure 3 shows the distribution of users by institution and position. Over two-thirds of the users belong to universities, with approximately 75% of the users associated with national universities. Over half of the university users are graduate and undergraduate students; this indicates that the Photon Factory plays an important role in both research and education. The geographical distribution of the Photon Factory users is shown in Fig. 4 and Fig. 5, which also indicates the immense contribution of the Photon Factory to research and education throughout Japan. The registered number of papers published in 2013 based on experiments at the PF was 622 at the time of this writing and is expected to exceed 680. In addition, 21 doctoral and 87 master theses have been presented.

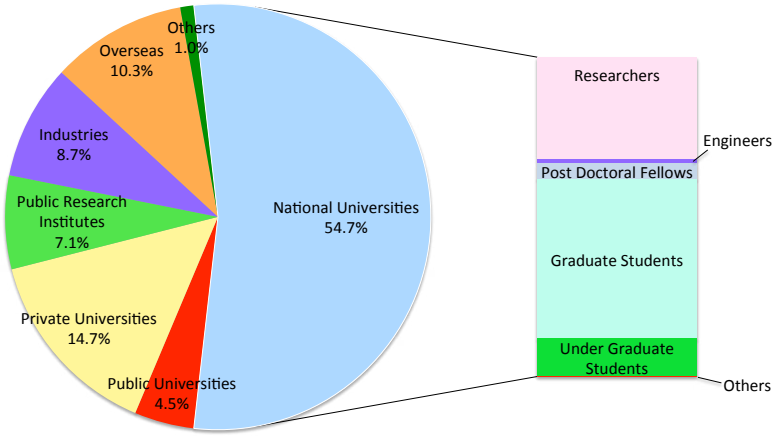

Figure 3: Distribution of users by institution and position.

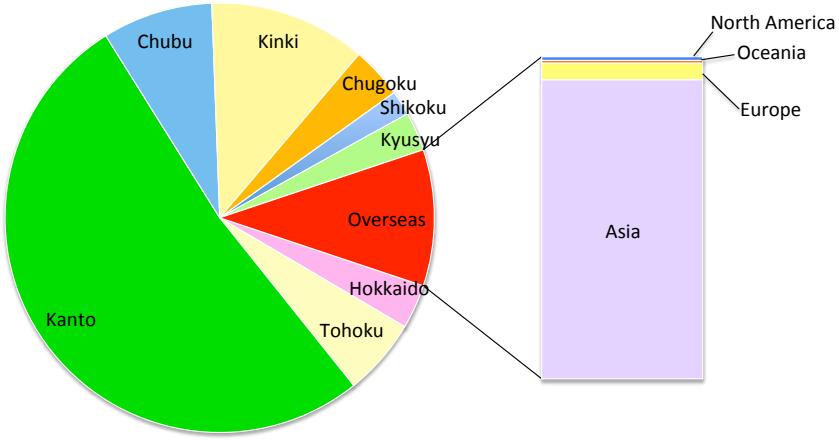

Figure 4: Regional distribution of the spokespersons of proposals accepted in FY2013.

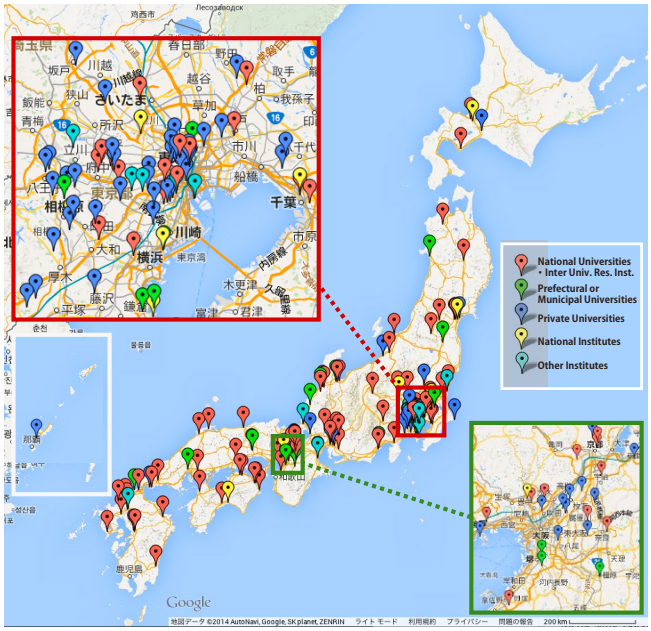

Figure 5: Geographical distribution of Photon Factory users in FY 2013 (domestic users only).