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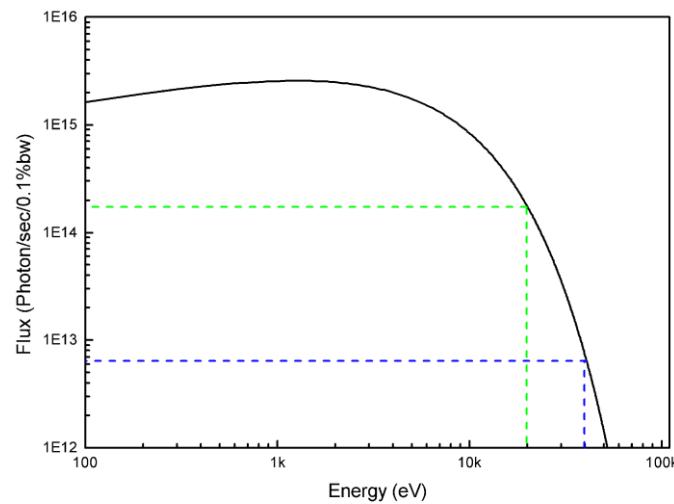
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**Supporting information for article:**

**A high-pressure single-crystal-diffraction experimental system at 4W2 beamline of BSRF**

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### S1. Flux-energy curve of beamline 4W2 at BSRF



**Figure S1** Flux-energy curve of beamline 4W2 at BSRF. Flux at 20 and 40 keV is marked with green and blue lines, respectively.

### S2. An example of integrating the intensity of a reflection

The intensity of a reflection is assumed to distributed in a region consisting of  $11 \times 11$  pixels on the detector with counts at each pixel as shown below:

75	94	157	226	291	322	224	137	83	54	36
87	138	254	464	599	480	238	128	81	56	37
133	271	566	1103	1754	1816	879	398	180	107	43
204	480	1170	2557	5138	6957	3796	1245	437	181	70
257	623	1822	4603	12359	20581	15075	3554	1044	323	118
304	736	2283	6838	19023	36136	37433	12148	2389	592	189
313	775	2333	7110	17971	33946	33504	15200	2991	704	193
268	658	1801	4686	10810	16107	14900	6739	1977	499	166
202	439	1046	2383	4785	6125	4836	2125	834	267	109
136	259	546	1071	1847	2353	1586	705	332	141	66
103	149	294	470	743	865	545	263	138	87	47

Step 1: Calculates  $A_1 = \frac{\sum_i^N P_i}{N}$ . N=121 pixels,  $A_1 = 3485.4$  counts/pixel.

Step 2: Calculates  $A_2 = \frac{\sum_j^M P_j}{M}$  ( $P_j \leq A_1$ ). The number of pixels with counts less than  $A_1$  is 95 (M = 95), and the average counts of these 95 pixels is 646.03 ( $A_2 = 646.03$ ).

Step3: Calculates the intensity of the reflection  $I_{net} = [\sum_i^{N-M} P_i] - (N - M) \times A_2$  ( $P_i > A_2$ ), where  $(N - M) = (121 - 95) = 26$ , the total counts of these 26 pixels with counts great than  $A_1$  is 360360.0,  $I_{net} = 360360.0 - (121 - 95) \times 646.03 = 343563.2$ .

It is worth noting that the algorithm is not applicable for integrating the intensities of two partially overlapped reflections. A negative  $I_{net}$  may be obtained for very weak reflections using this method.