JOURNAL OF APPLIED CRYSTALLOGRAPHY

Volume 56 (2023)

Supporting information for article:

Design of multi-shell nested fully annular quasi-ellipsoidal focusing mirrors for small-angle neutron scattering

Wentao Song, Zhong Zhang, Qiya Zhang, Jun Yu, Qiushi Huang, Chenyuan Chang, Weihang Hong, Xuewu Wang and Zhanshan Wang

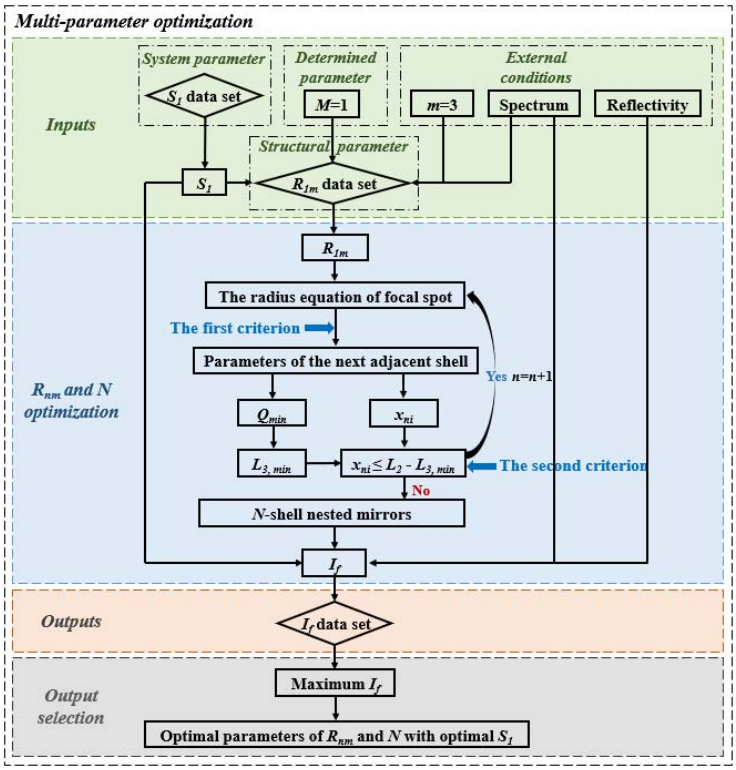

Figure S1 Logic diagram of multi-parameter optimization of R_{nm} and N with S_1 and M = 1. The diamond represents the data set of a parameter.

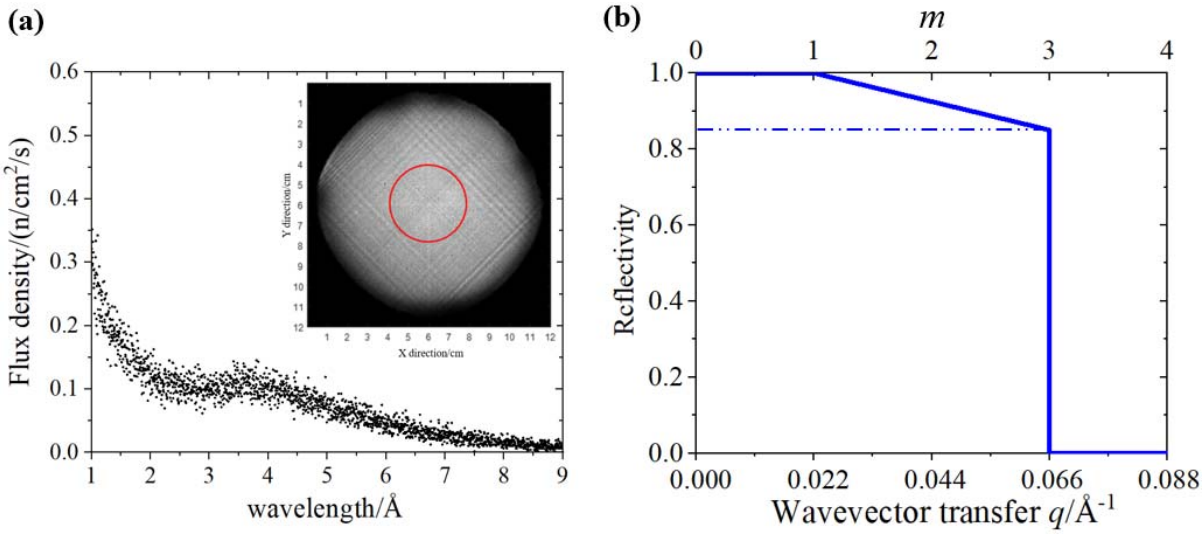

Figure S2 (a) Incident neutron spectrum of a CPHS at 240 W in March 2021 and the distribution of neutron flux in the image plane after the CPHS source without focusing optics. (b) Approximated reflectivity curve of an m = 3 supermirror.

Table S1 Radius parameters R_{nm} (n = 1, 2, …, N) for the designed and optimal mirrors of different S_1

	Designed mirrors	Optimal mirrors of S_1 = 10 mm	Optimal mirrors of S_1 = 20 mm	Designed mirrors after blocking outer 6 shells
R_{1m}	120.0	114.0	122.0	81.0
R_{2m}	112.6	107.2	114.2	75.7
R_{3m}	105.6	100.7	106.9	70.6
R_{4m}	98.9	94.6	99.9	65.8
R_{5m}	92.7	88.8	93.3	/
R_{6m}	86.7	83.3	/	/
R_{7m}	81.0	78.1	/	/
R_{8m}	75.7	73.2	/	/
R_{9m}	70.6	68.5	/	/
R_{10m}	65.8	64.1	/	/
R_{11m}	/	59.9	/	/
N	**10**	**11**	**5**	**4**