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Supporting information for article:

Reducing the thermal deformation of InSb crystal by using double-bounce HHRMs in the TPS tender X-ray absorption spectroscopy beamline

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The FEA of HHRMs and CM using the boundary conditions are listed in Table S1.

Table S1 The FEA boundary conditions of HHRMs and CM.

	HHRM1	HHRM2	CM
Mirror Dimension (L×W×T, mm ³)	620×120×80	620×120×80	580×70×40
Footprint (L×W, mm ²)	341×47.8	348×48.8	542×54.2
Absorbed Power (W)	76.1	0.7	0.5
Cooling Water Flow rate (L min ⁻¹)		2	
Cooling Water Temperature (K)		293	
Heat Convection Film Coefficient (W m ⁻² K ⁻¹)		6390	
Thermal contact conductance (W m ⁻² K ⁻¹)		5000	
Cooling method		Water side cooling	

The FEA results of HHRM1, HHRM2 and CM as shown in Figure S1 to S3, respectively.

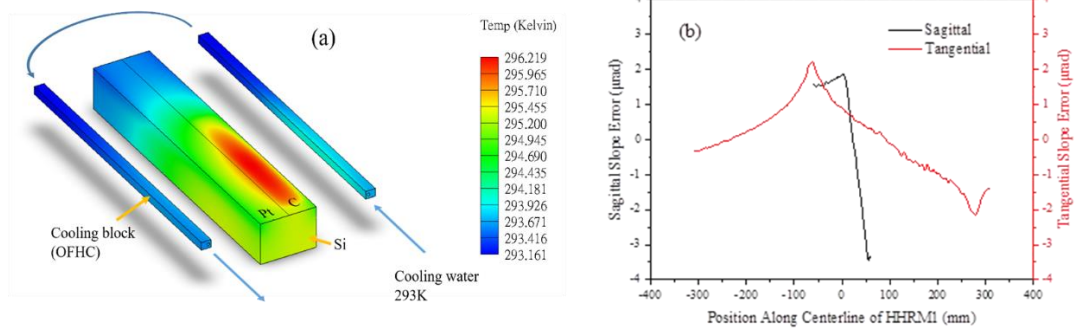


Figure S1 The FEA result of HHRM1 (a) temperature gradient and (b) slope error. The carbon-coated zone of the mirror absorbs 76.1 W of heat at an incident angle of 10.5 mrad. The beam footprint is 341 mm(length) \times 47.8 mm(width) on a mirror dimension of 620 mm(length) \times 120 mm(width) \times 80 mm(thickness).

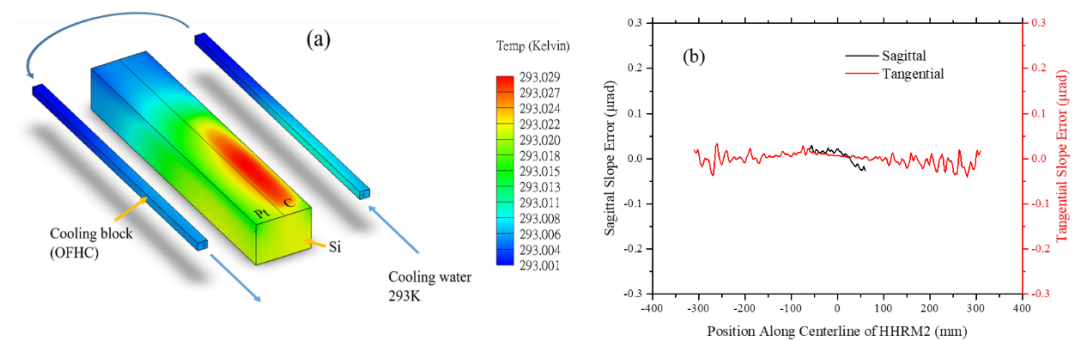


Figure S2 The FEA result of HHRM2 (a) temperature gradient and (b) slope error. The carbon-coated zone of the mirror absorbs 0.7 W of heat at an incident angle of 10.5 mrad. The beam footprint is 348 mm(length) \times 48.8 mm(width) on a mirror dimension of 620 mm(length) \times 120 mm(width) \times 80 mm(thickness).

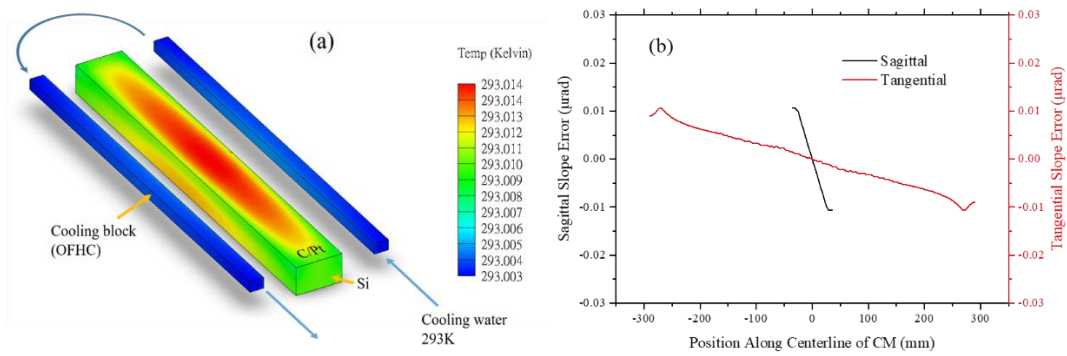


Figure S3 The FEA result of CM (a) temperature gradient and (b) slope error. The bilayer C/Pt coating of the mirror absorbs 0.5 W of heat at an incident angle of 7.5 mrad. The footprint is 542 mm(length) \times 54.2 mm(width) on a mirror dimension of 580 mm(length) \times 70 mm(width) \times 40 mm(thickness).