

Supporting Information

Pressure-Enhanced Photocurrent in One-dimensional SbSI via Lone-Pair Electrons Reconfiguration

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Figures and tables

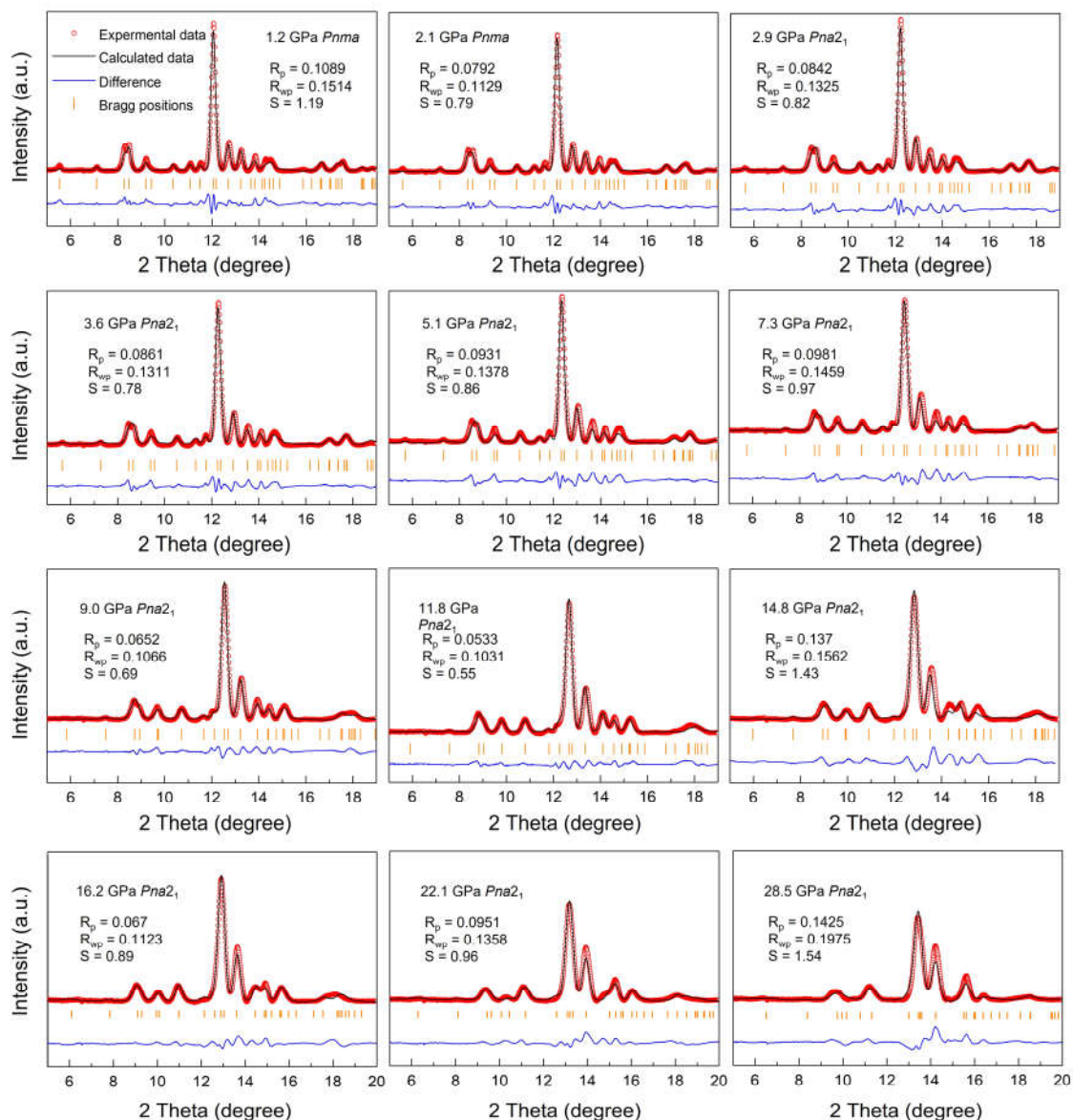


Figure S1. Rietveld refinement results of SbSI at selected pressures.

Table S1. The lattice parameters of the SbSI at selected pressures.

Pressure (GPa)	Space group	<i>a</i> (Å)	<i>b</i> (Å)	<i>c</i> (Å)	<i>V</i> (Å ³)
1.2	<i>Pnma</i>	8.3869	9.9900	4.0707	341.064
2.1	<i>Pnma</i>	8.3036	9.8979	4.0409	332.112
2.9	<i>Pna2₁</i>	8.2484	9.8287	4.0298	326.702
3.6	<i>Pna2₁</i>	8.2094	9.7728	4.0216	322.648
5.1	<i>Pna2₁</i>	8.1399	9.6954	4.0040	315.994

7.3	$Pna2_1$	8.0485	9.5781	3.9802	306.831
9.0	$Pna2_1$	7.9601	9.5120	3.9547	299.435
11.8	$Pna2_1$	7.8664	9.3614	3.9326	289.598
13.2	$Pna2_1$	7.8303	9.3421	3.9170	286.534
14.8	$Pna2_1$	7.73860	9.2300	3.8756	276.828
16.2	$Pna2_1$	7.68650	9.1520	3.8598	271.524
18.8	$Pna2_1$	7.5750	8.9960	3.8520	262.494
22.1	$Pna2_1$	7.4870	8.8990	3.8078	253.701
24.2	$Pna2_1$	7.4390	8.7990	3.769	246.702

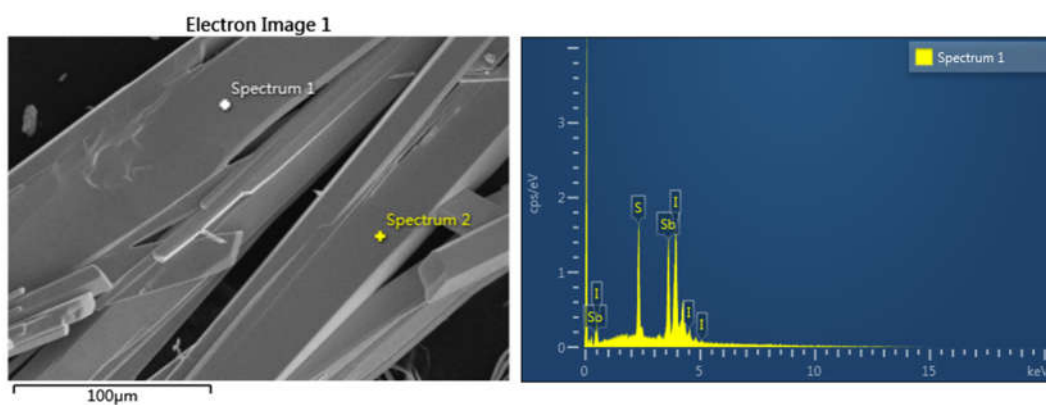


Figure S2. The scanning electron microscope (SEM) image and X-ray energy dispersive spectroscopy (EDS) of SbSI single crystal.

Table S2. Energy-dispersive X-ray analysis results of SbSI.

Element	Wt%	Atomic %
S	10.77	31.85
Sb	45.74	35.64
I	43.50	32.51
Total:	100.00	100.00

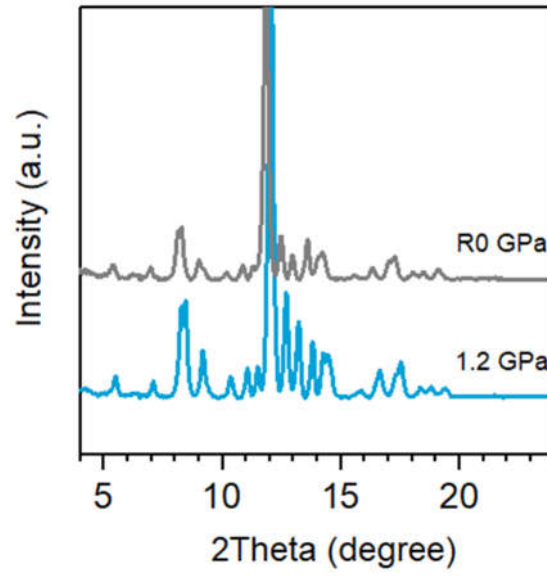


Figure S3. XRD patterns of the SbSI initial sample and the recovered sample.

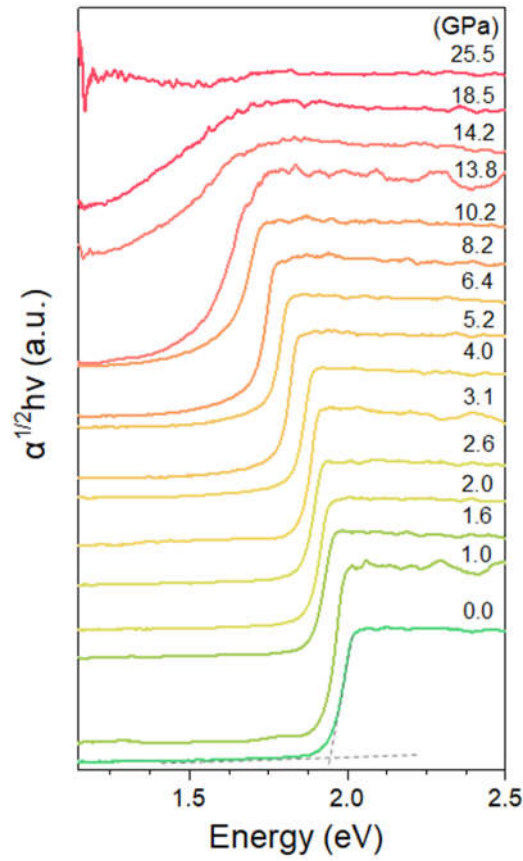


Figure S4. Selective the plot of $\alpha^{1/2}hv$ versus bandgap on a single-crystal SbSI under compression.

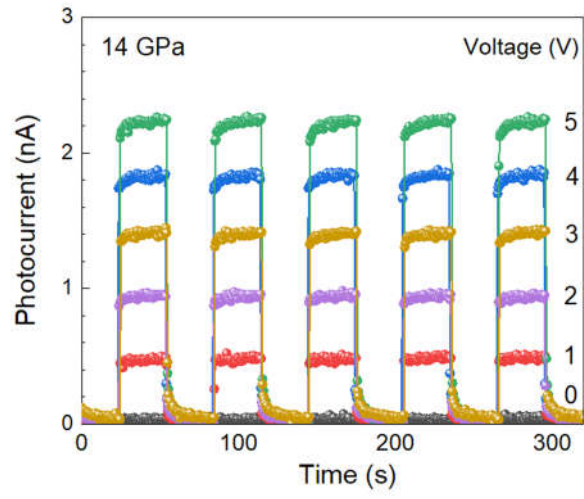


Figure S5. Photocurrent of 14 GPa at different bias voltages.

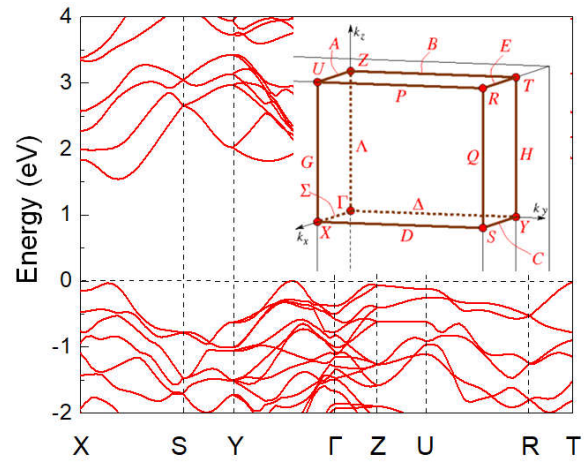


Figure S6. Electronic band structure of SbSI.