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Supporting Information

Azetidinium Lead Iodide: Synthesis, Structural and Physico-Chemical Characterization

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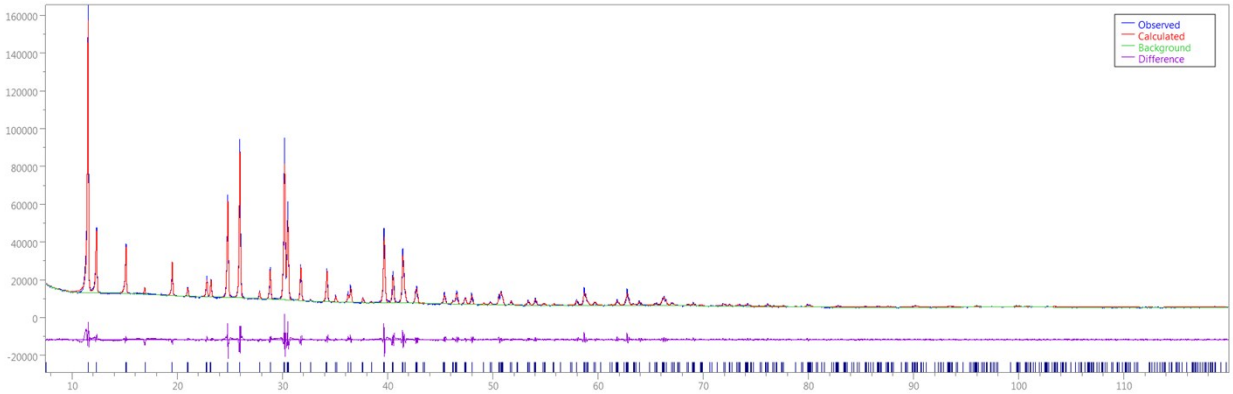

Fig. S1. Le Bail fit of the X-ray powder diffraction pattern of product A using the structure with only Pb and I atoms.

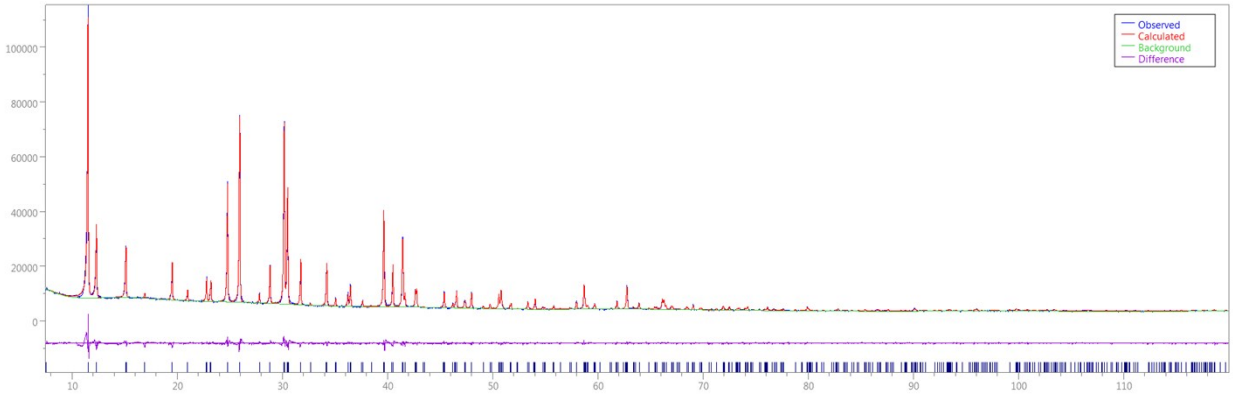

Fig. S2. Fig. S1. Le Bail fit of the X-ray powder diffraction pattern of product A using the structure with Pb and I atoms and adding N atoms in the positions found by Fourier synthesis.

Fig. S3-S11. Powder X-ray diffraction patterns of product A after different thermal treatments in environmental chamber in He atmosphere.

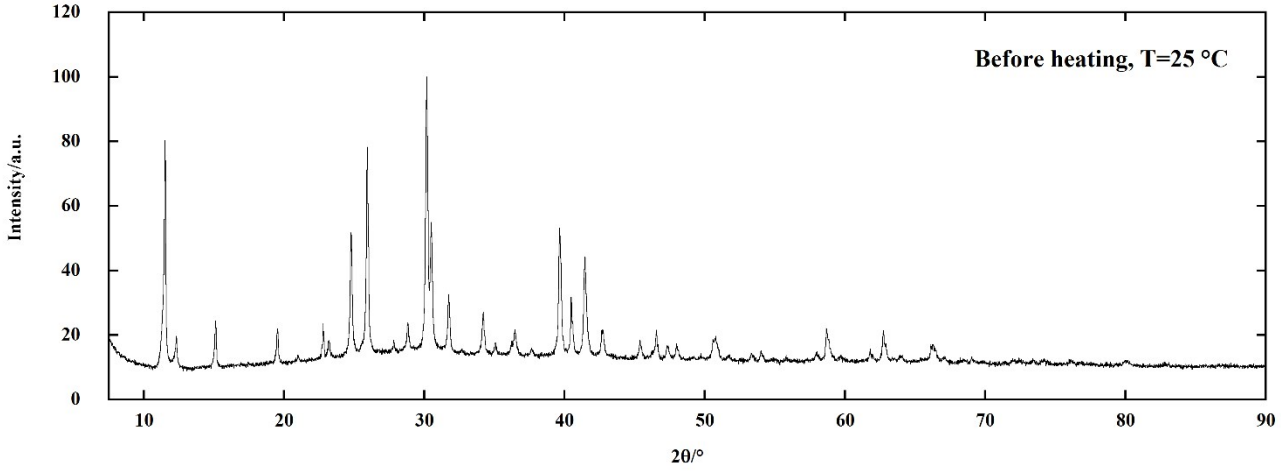

Fig. S3.

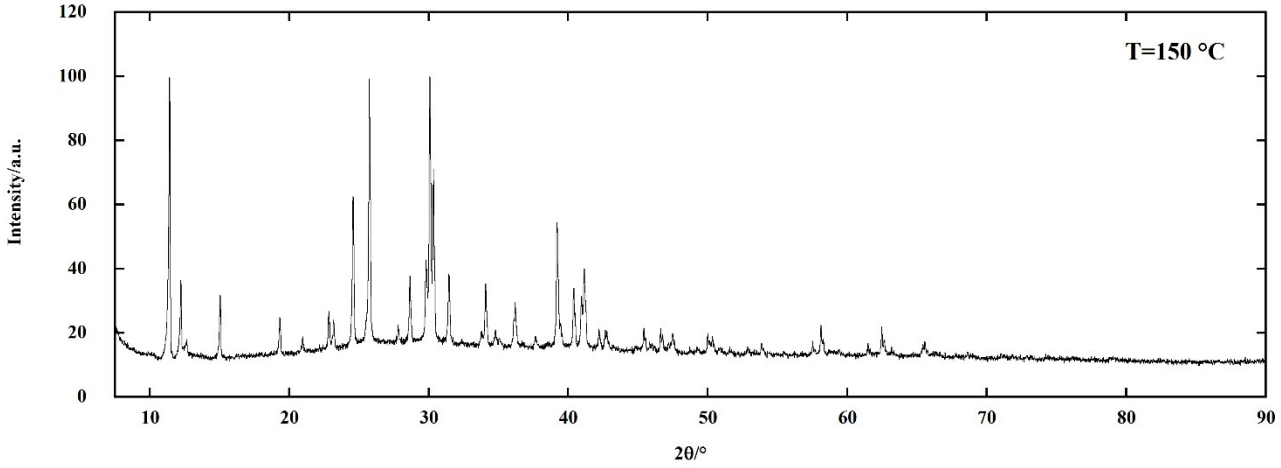
T=150 °C
Intensity/a.u.
2θ/°
0
20
40
60
80
100
120
10
20
30
40
50
60
70
80
90

Fig. S4.

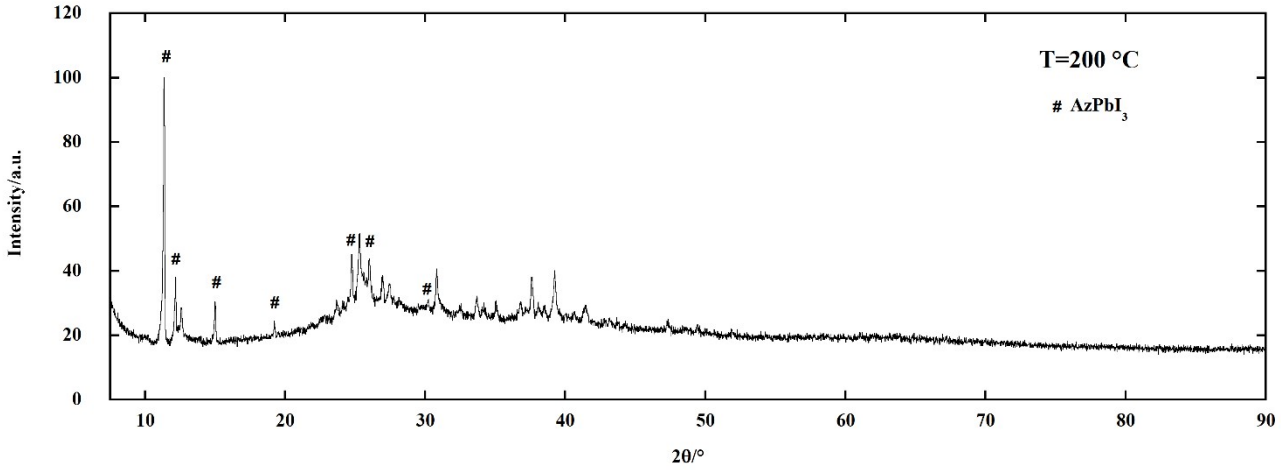
T=200 °C
# AzPbI3
Intensity/a.u.
2θ/°
120
100
80
60
40
20
0
10
20
30
40
50
60
70
80
90

Fig. S5.

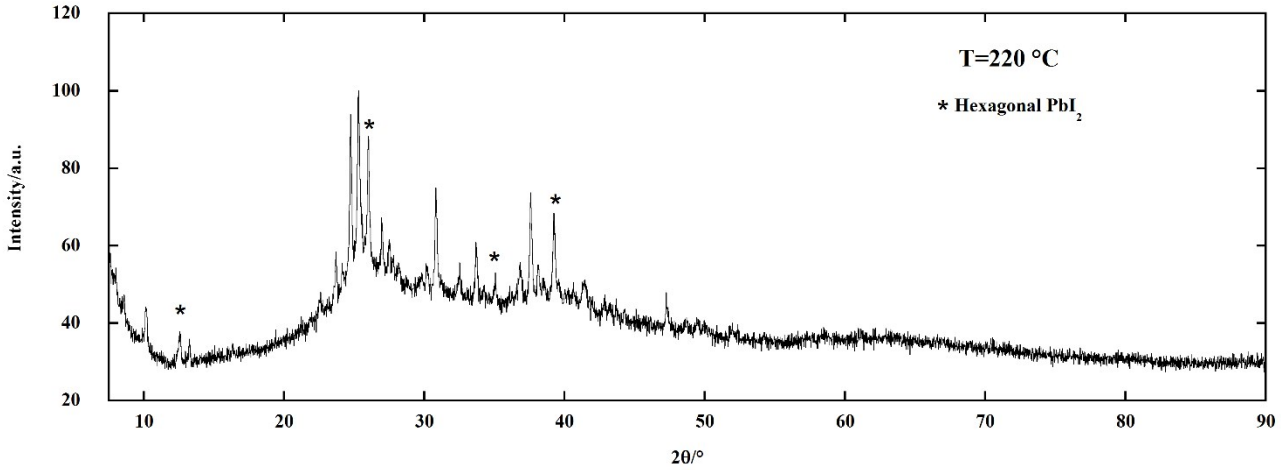
T=220 °C
* Hexagonal PbI2
Intensity/a.u.
2θ/°
120
100
80
60
40
20
10
20
30
40
50
60
70
80
90

Fig. S6.

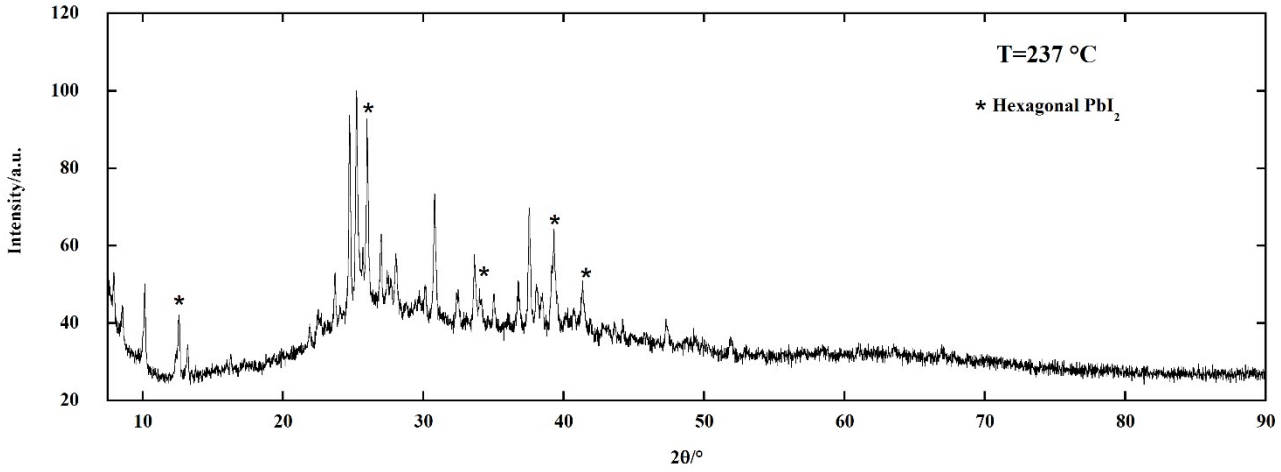
T=237 °C
* Hexagonal PbI2
Intensity/a.u.
2θ/°
120
100
80
60
40
20
10
20
30
40
50
60
70
80
90

Fig. S7.

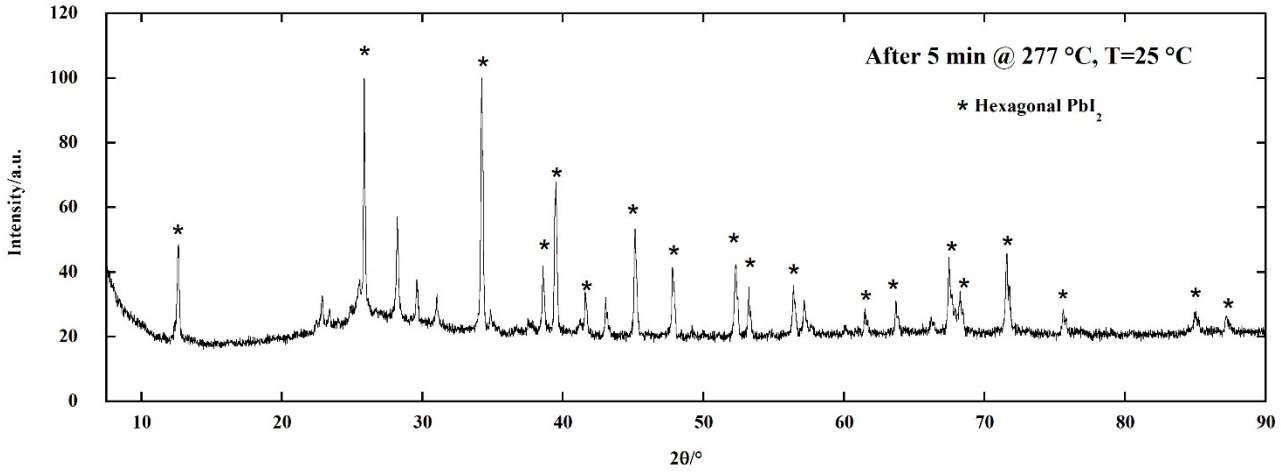
After 5 min @ 277 °C, T=25 °C
* Hexagonal PbI2
Intensity/a.u.
2θ/°
0
20
40
60
80
100
120
10
20
30
40
50
60
70
80
90

Fig. S8.

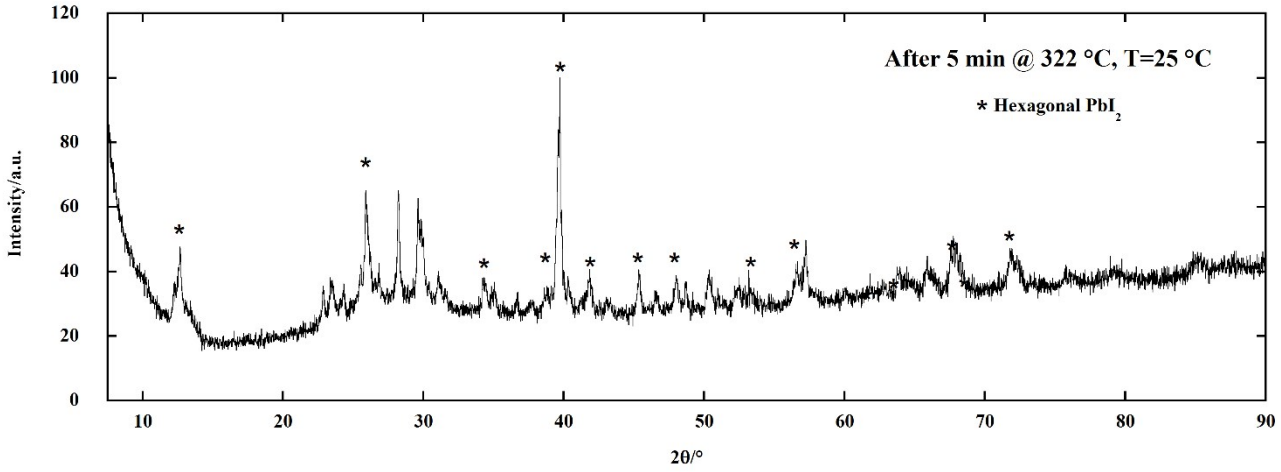
After 5 min @ 322 °C, T=25 °C
* Hexagonal PbI2
Intensity/a.u.
2θ/°
0
20
40
60
80
100
120
10
20
30
40
50
60
70
80
90

Fig. S9.

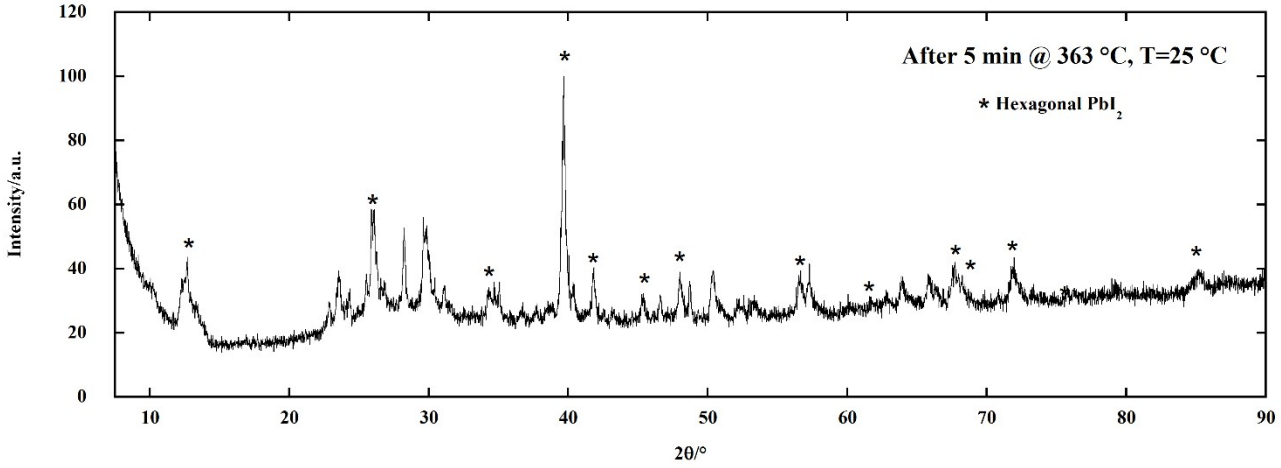
After 5 min @ 363 °C, T=25 °C
* Hexagonal PbI2
Intensity/a.u.
2θ/°
0
20
40
60
80
100
120
10
20
30
40
50
60
70
80
90

Fig. S10.

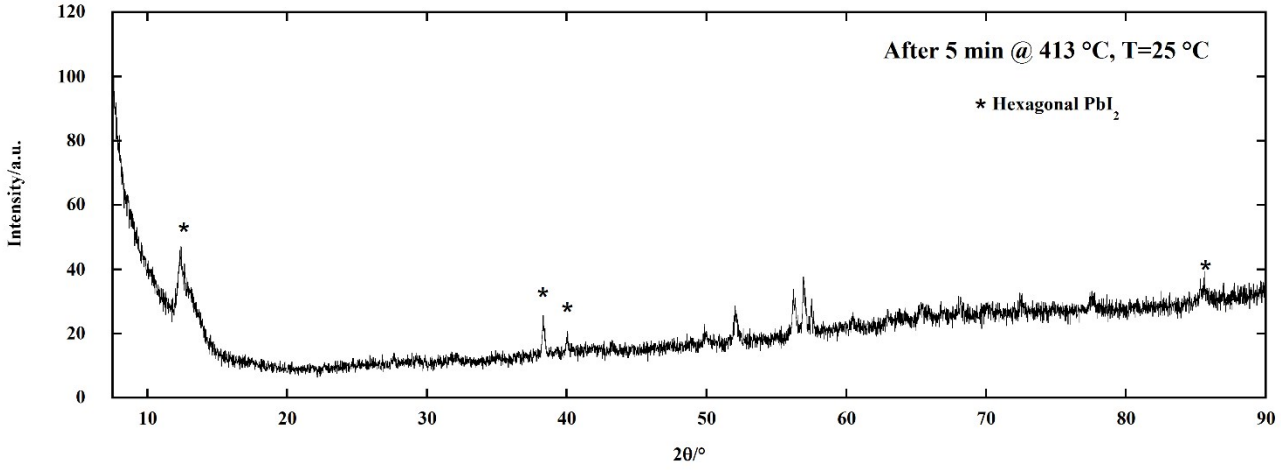
After 5 min @ 413 °C, T=25 °C
* Hexagonal PbI2
Intensity/a.u.
2θ/°
0
20
40
60
80
100
120
10
20
30
40
50
60
70
80
90

Fig. S11.

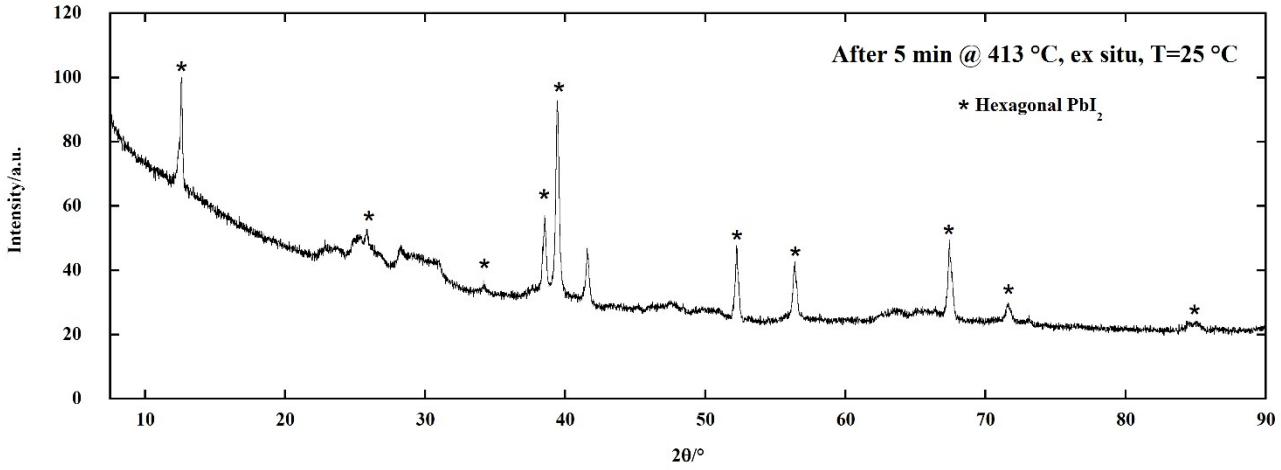

Fig. S12. Powder X-ray diffraction patterns of the sample of fig. S11 measured without environmental chamber.

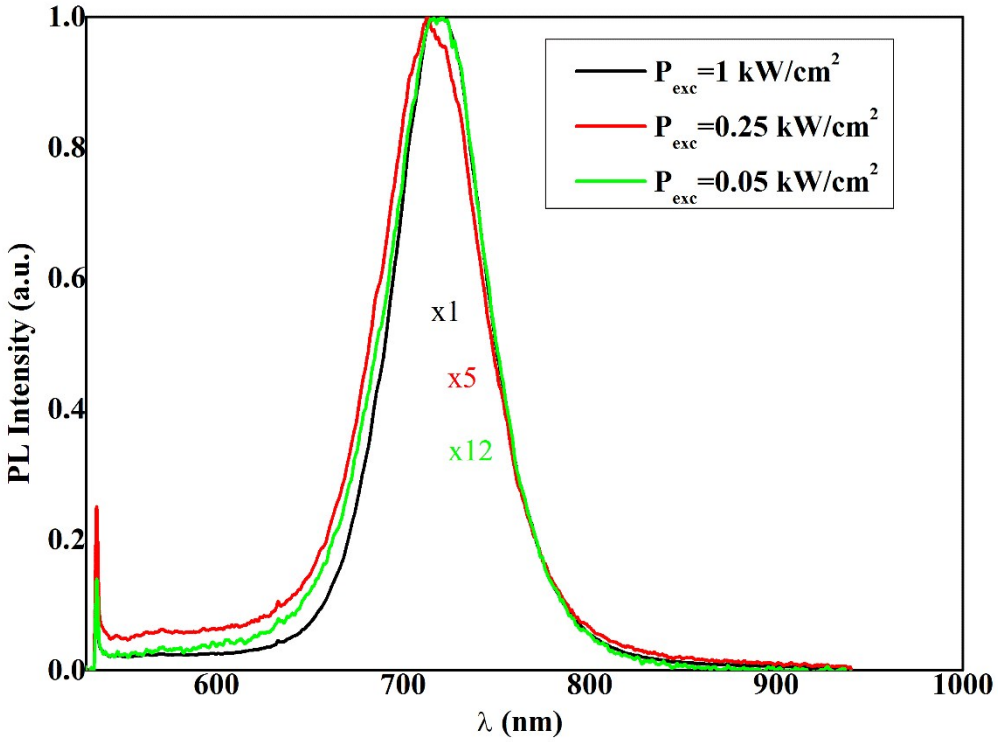

Fig. S13. PL spectra of product A obtained with different laser excitation power levels.

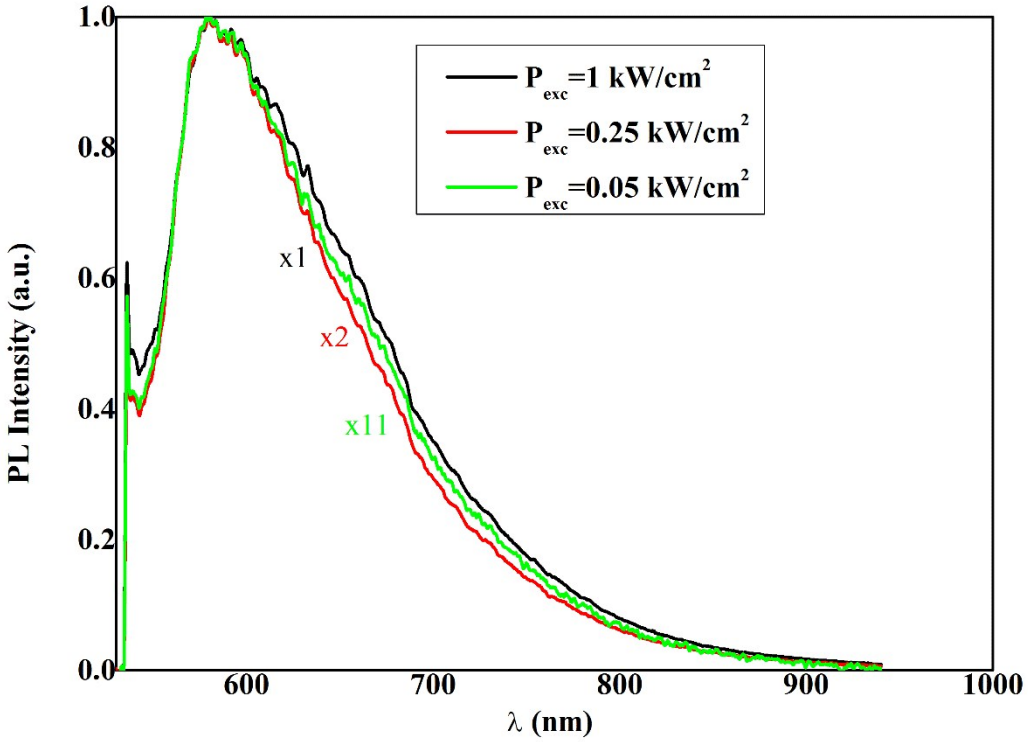

Fig. S14. PL spectra of product B obtained with different laser excitation power levels.

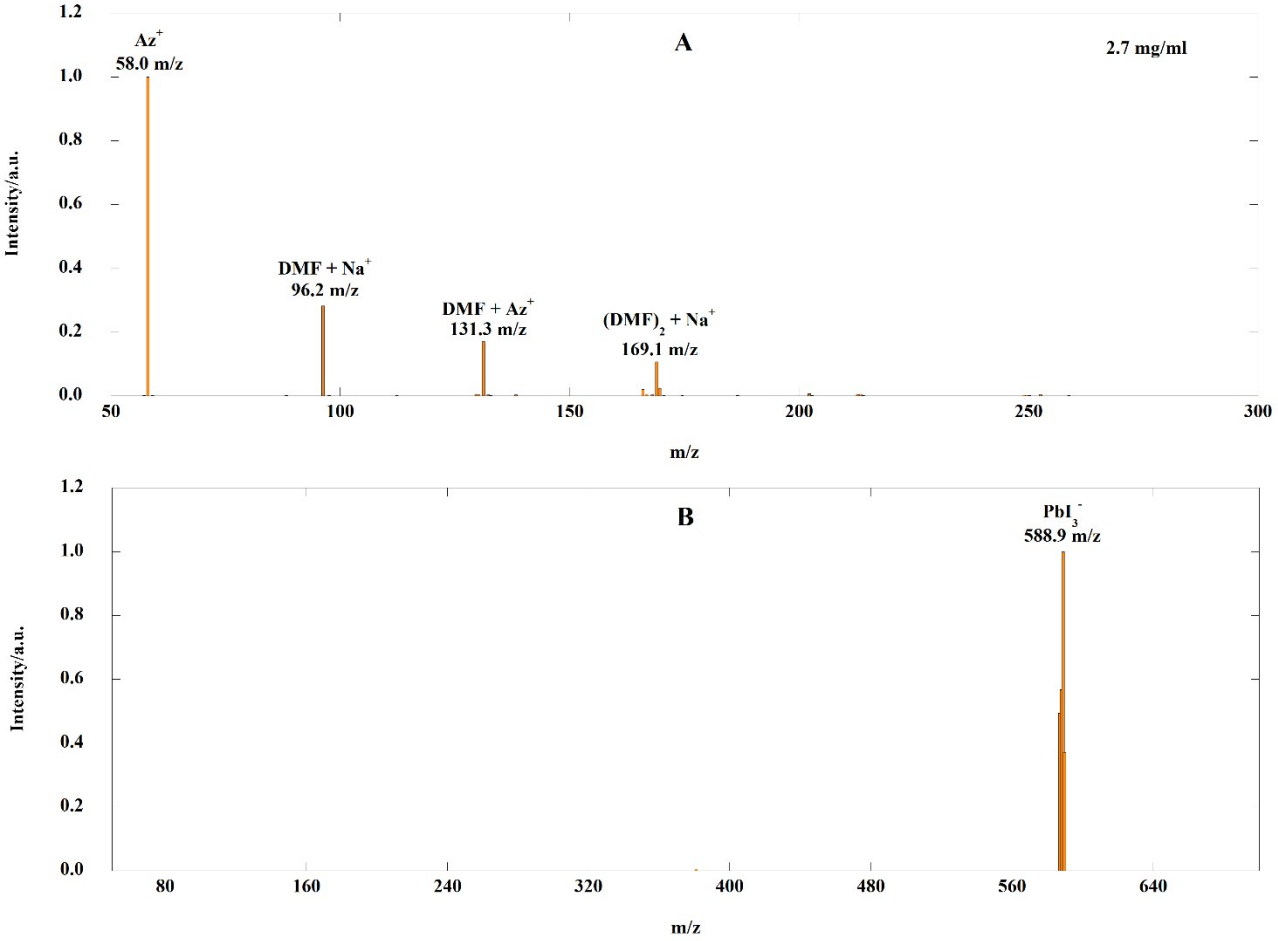

Fig. S15. ESI-MS spectra of product A dissolved in DMF.

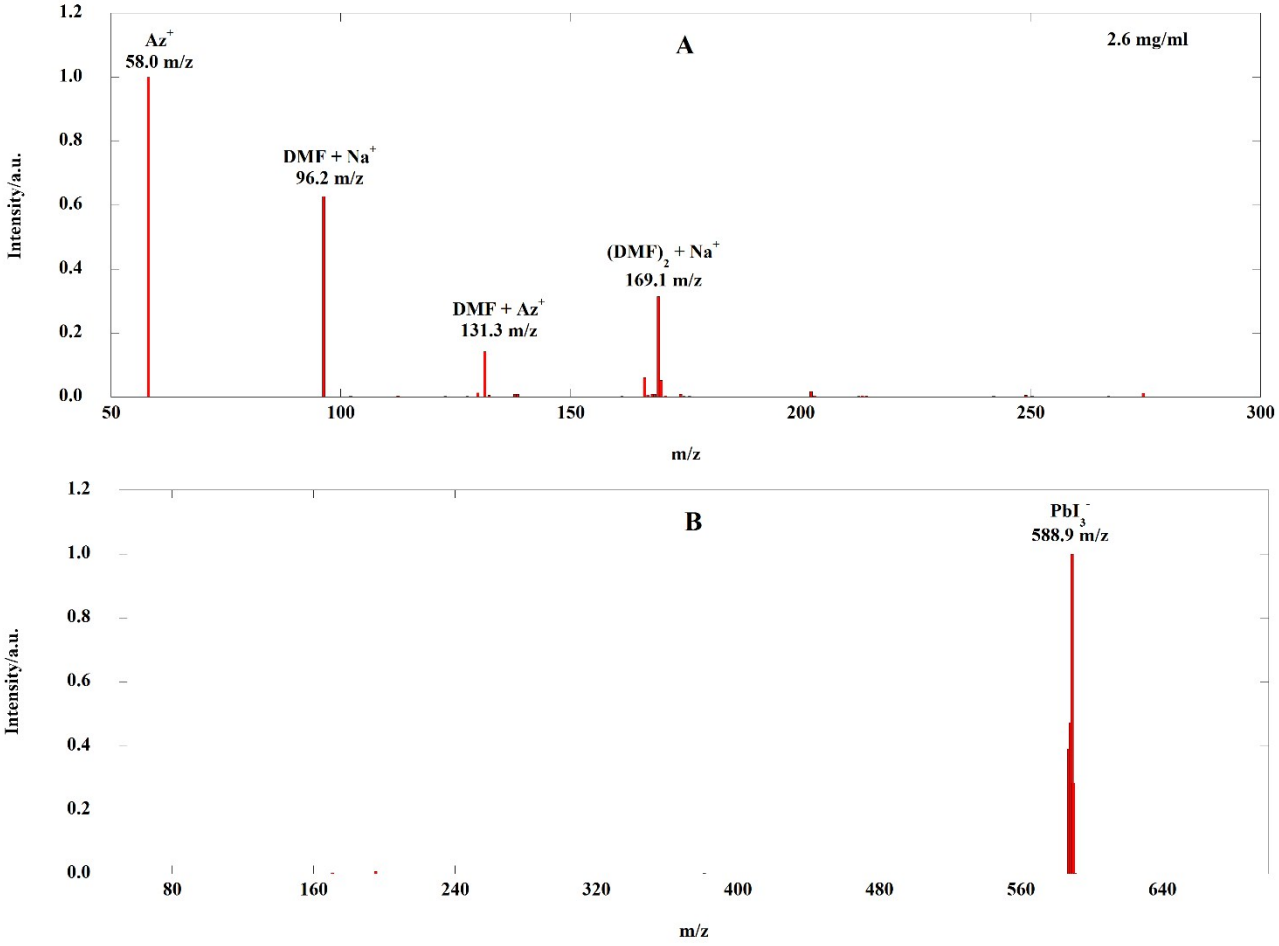

Fig. S16. ESI-MS spectra of product B dissolved in DMF.

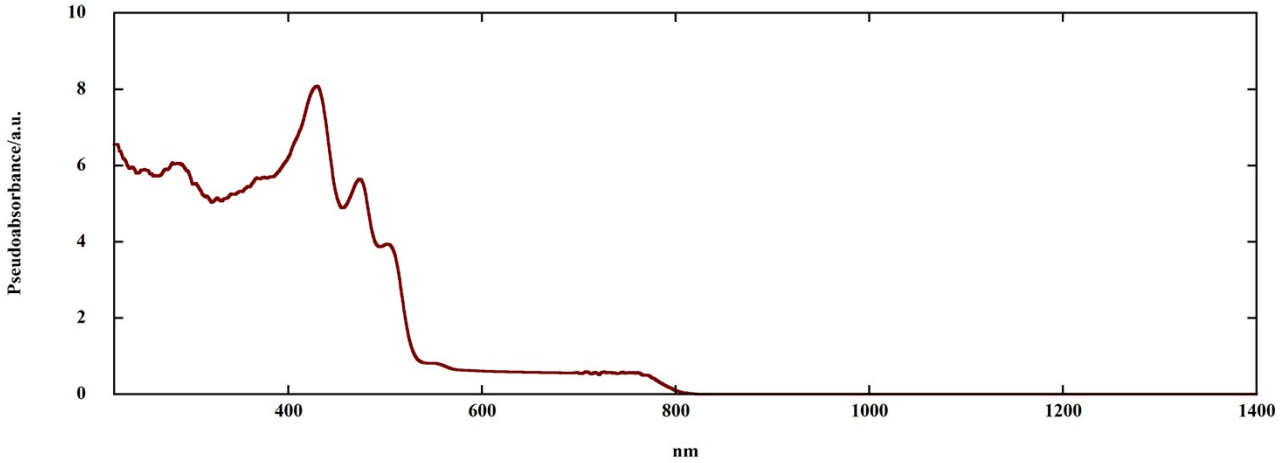

Fig. S17. UV-Vis spectrum of the product obtained by coprecipitation of $AzPbI_3$ and $CH_3NH_3PbI_3$.