Electronic Supplementary Material (ESI) for Journal of Materials Chemistry C.

Supporting Information

Silver Chlorobromide Nanocubes with Significantly Improved Uniformity: Synthesis and Assembly into Photonic Crystals

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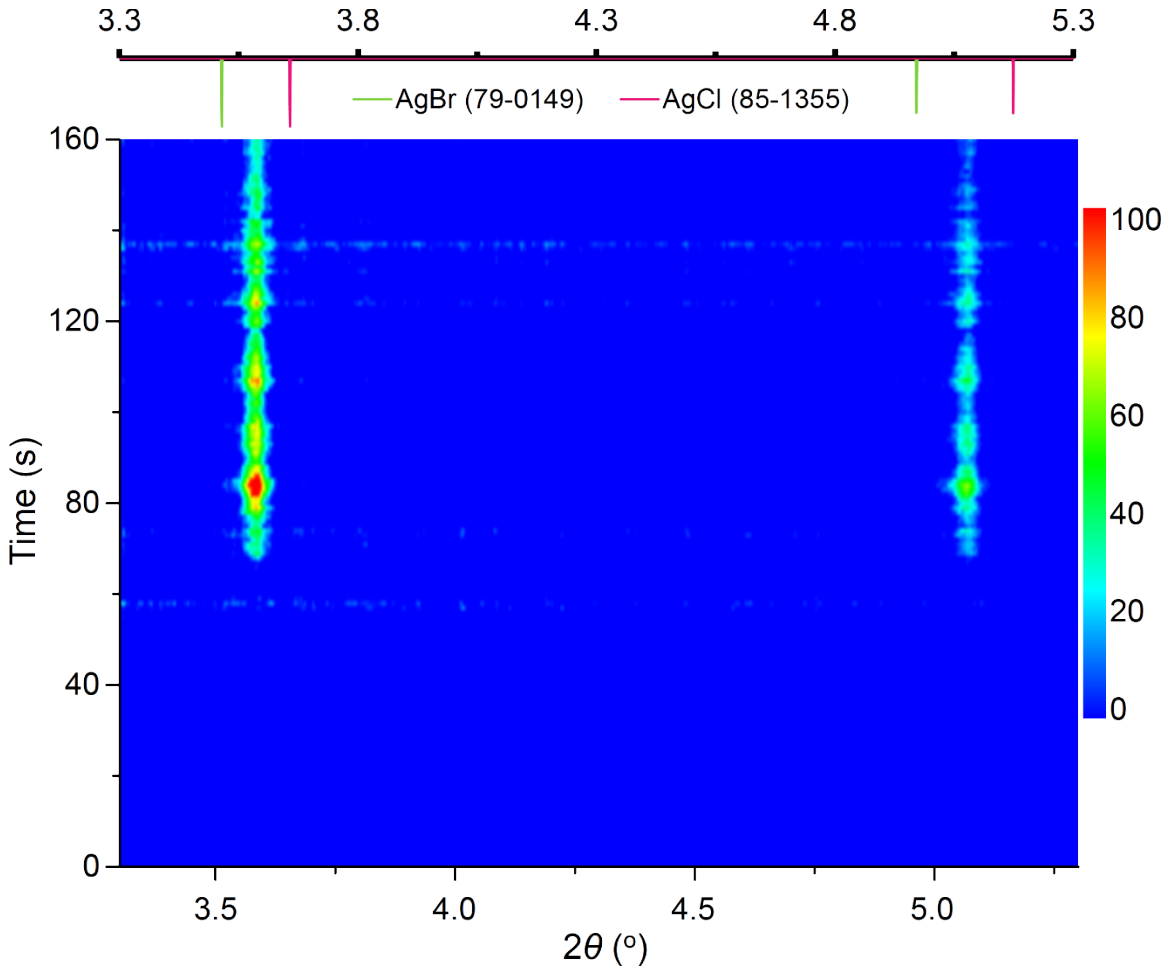

Fig. S1 2D contour of the XRD patterns recorded from the reaction solution that was used for the synthesis of $AgCl_xBr_{1-x}$ nanocubes shown in Fig. 1e. Different patterns were recorded at different times (t) normalized against the time when the $AgNO_3$ solution started to be injected to the reaction solution. The reaction conditions were same as those of Fig. 1e. The sticks on the top axes correspond to the positions and relative intensities of the standard XRD patterns of AgBr (JCPDS no. 79-0149) and AgCl (JCPDS no. 85-1355). The wavelength of the X-ray was 0.1771 Å.

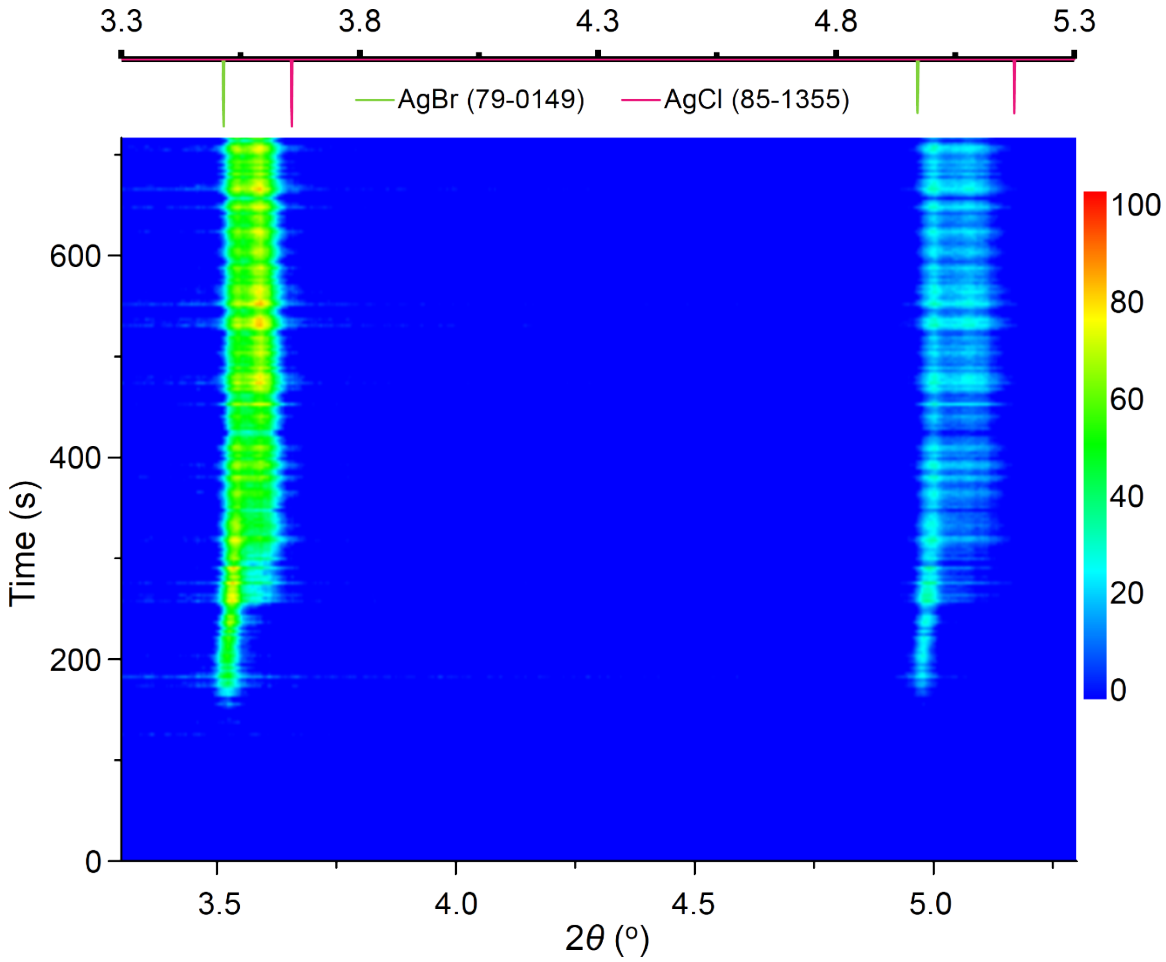

Fig. S2 2D contour of the XRD patterns recorded from the reaction solution that was used for the synthesis of $AgCl_xBr_{1-x}$ nanocubes at 60 °C with Cl^- to Br^- molar ratio as 1:1, and the addition of $AgNO_3$ solution with injection rate of 0.2 mL/min. Different patterns were recorded at different times (t) normalized against the time when the $AgNO_3$ solution started to be injected to the reaction solution. The reaction conditions were same as those of Fig. 1e. The sticks on the top axes correspond to the positions and relative intensities of the standard XRD patterns of AgBr (JCPDS no. 79-0149) and AgCl (JCPDS no. 85-1355). The wavelength of the X-ray was 0.1771 Å.

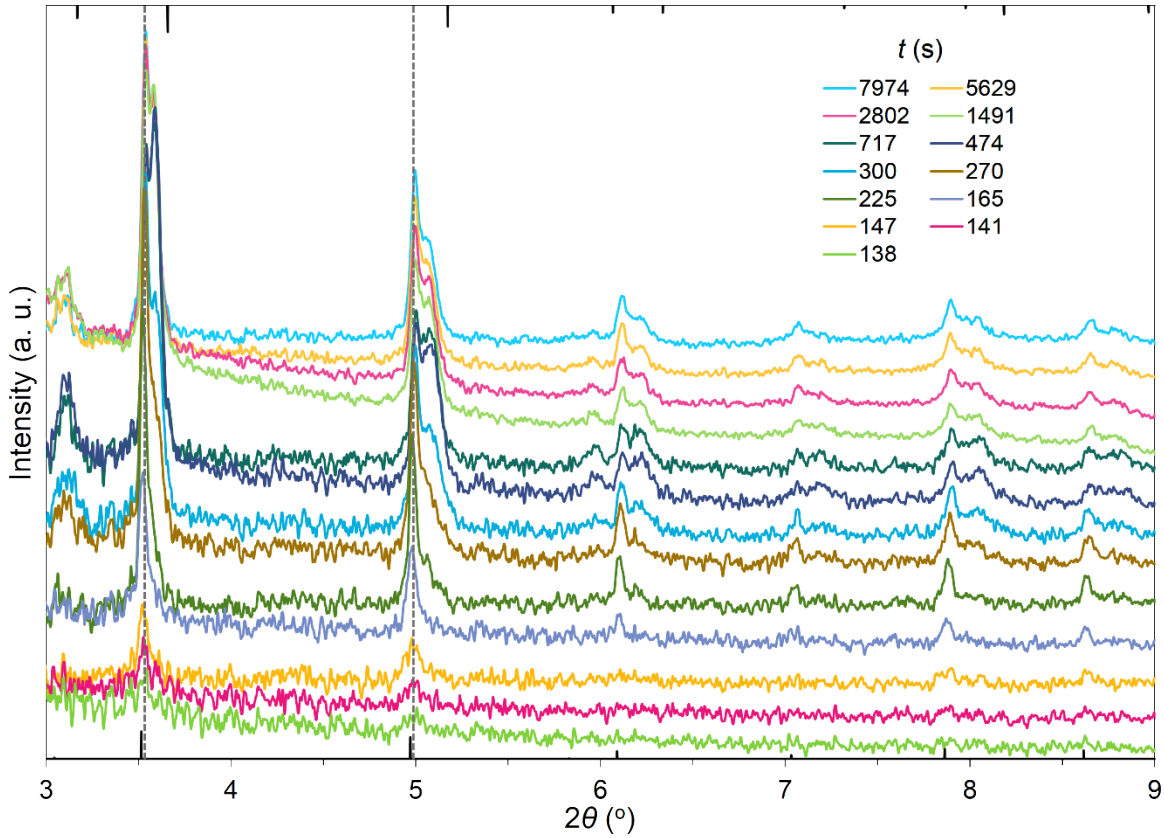

Fig. S3 Representative XRD patterns taken from the reaction solution that was used for the synthesis of $AgCl_xBr_{1-x}$ nanocubes shown in Fig. S2. Different patterns were recorded at different times (t) normalized against the time when the $AgNO_3$ solution started to be injected to the reaction solution. The sticks on the bottom and top axes correspond to the positions and relative intensities of the standard XRD patterns of AgBr (JCPDS no. 79-0149) and AgCl (JCPDS no. 85-1355), respectively. The wavelength of the X-ray was 0.1771 Å.

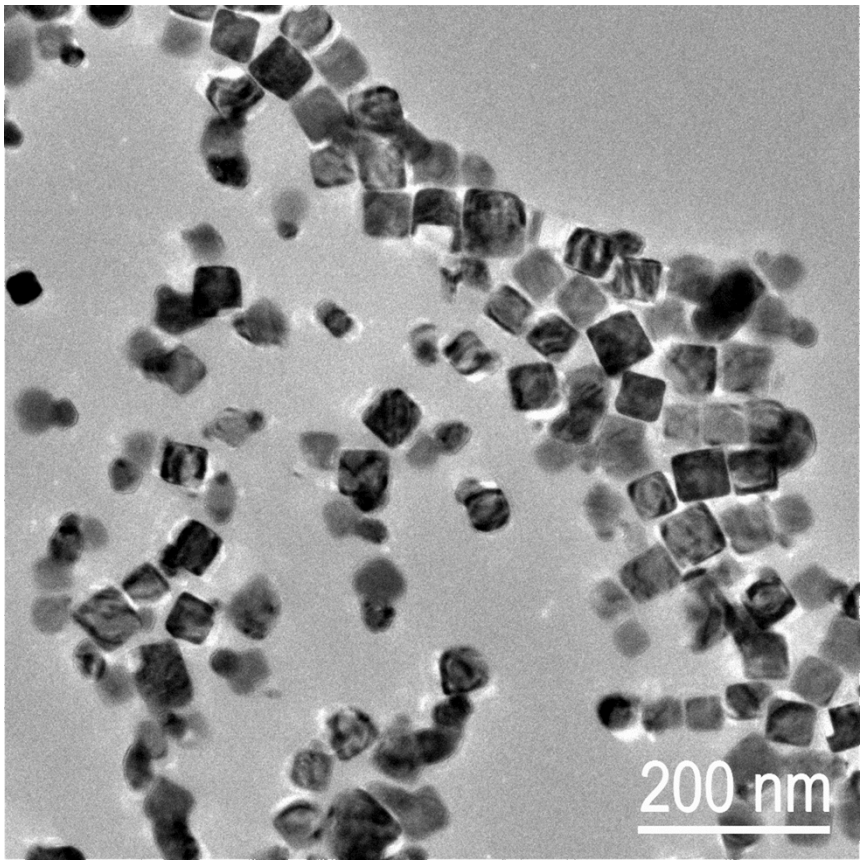

Fig. S4 TEM image of the $AgCl_xBr_{1-x}$ nanocubes formed through the reaction presented in Fig. S2.

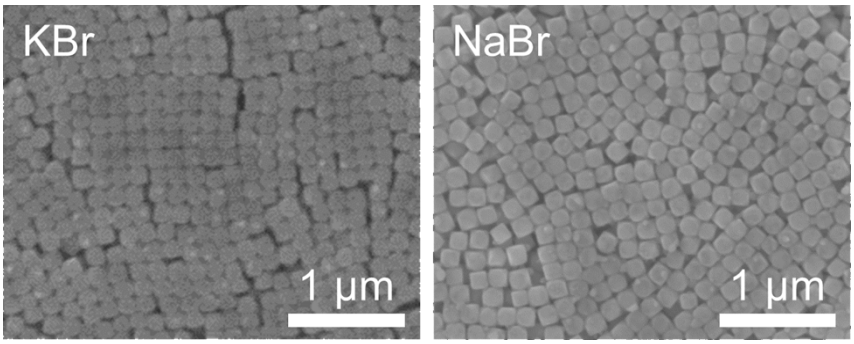

Fig. S5 SEM images of the $AgCl_xBr_{1-x}$ nanocubes prepared with either KBr or NaBr as the Br^- source.

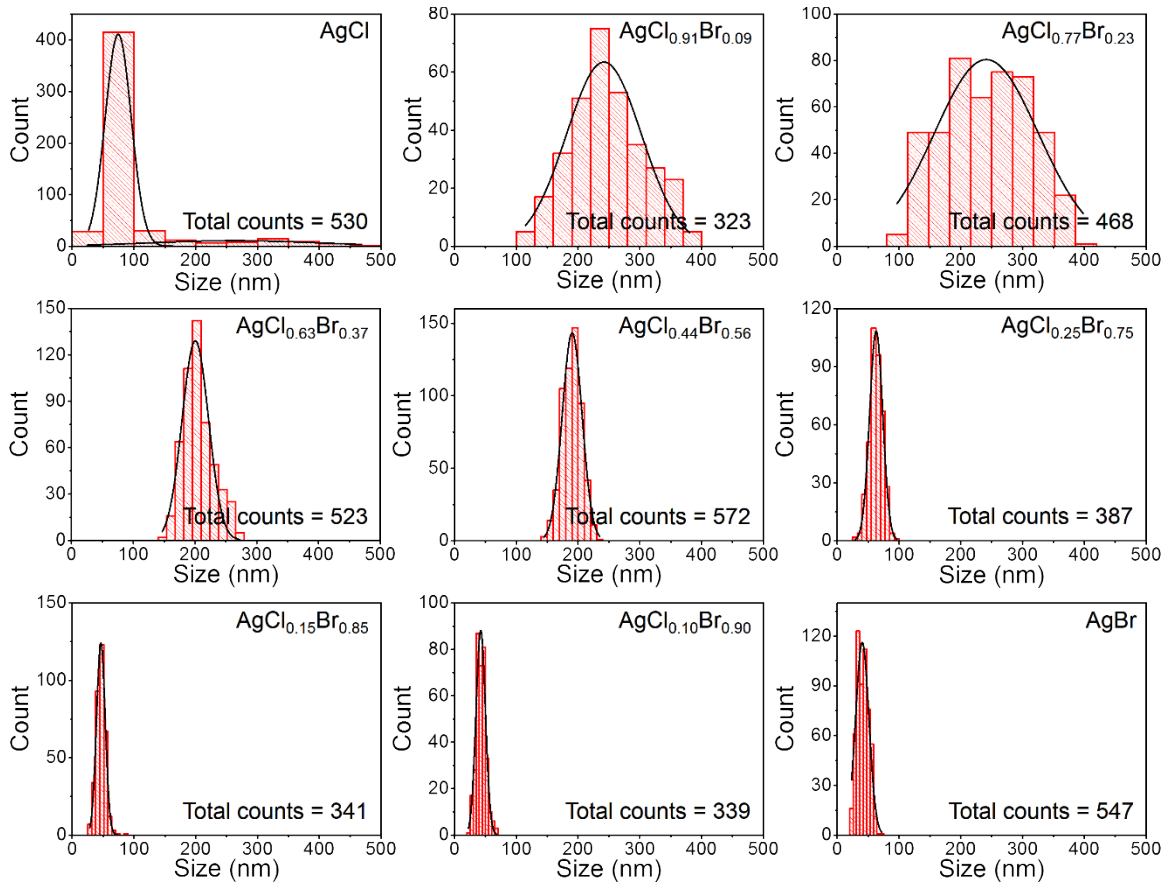

Fig. S6 Statistics analysis on size distribution of the $AgCl_xBr_{1-x}$ nanoparticles formed from reaction solutions with different molar ratios of Cl^- to Br^- ions. The images of the nanoparticles are presented in Fig. 1.

Table S1. Detailed experimental conditions for the $AgCl_xBr_{1-x}$ batches prepared.

Sample	[NaCl] (mM)	[KBr] (mM)	[$AgNO_3$] (mM)	$AgNO_3$ injection speed (mL/min)	Reaction time (h)	Reaction temperature (^oC)
Fig. 1a	26.9	0	26.2	1	2	60
Fig. 1b	23.6	3.4	26.2	1	2	60
Fig. 1c	20.2	6.7	26.2	1	2	60
Fig. 1d	16.8	10.1	26.2	1	2	60
Fig. 1e	13.5	13.5	26.2	1	2	60
Fig. 1f	10.1	16.8	26.2	1	2	60
Fig. 1g	6.7	20.2	26.2	1	2	60
Fig. 1h	0	26.9	26.2	1	2	60
Fig. 3	13.5	13.5	26.2	1	2	60
Fig. 5a	13.5	13.5	26.2	1.5	2	60
Fig. 5b	13.5	13.5	26.2	2	2	60
Fig. 5c	13.5	13.5	26.2	60	2	60
Fig. 6a	13.5	13.5	26.2	1	2	60
Fig. 6b	13.5	13.5	26.2	3	2	80
Fig. 7	13.5	13.5	26.2	1	2	60
Fig. 8a	13.5	13.5	26.2	60	2	60
Fig. 8b	13.5	13.5	26.2	2	2	60
Fig. 8c	13.5	13.5	26.2	1.5	2	60
Fig. 8d	13.5	13.5	26.2	3	2	80
Fig. S1	13.5	13.5	26.2	1	2	60
Fig. S2	13.5	13.5	26.2	0.2	2	60

Fig. S3	13.5	13.5	26.2	0.2	2	60
Fig. S4	13.5	13.5	26.2	0.2	2	60
Fig. S5	13.5	13.5*	26.2	1.5	2	60

*: This concentration applies to either [KBr] or [NaBr].