Supplementary information for:

Tuning the energy transfer in Ruddlesden-Popper perovskites phases through isopropylammonium addition – towards efficient blue emitters

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n-phase	Peak position (nm)	FWHM
n=1	415	9
n=2	448	14
n=3	475	15
n=4	491	16
n≥5	510	30

Table S1 Photoluminescence peaks position and FWHM of the main signals in steady-state PL for thin films deposited on PEDOT. The values are obtained by fitting the spectra with multiple gaussians components.

	Wavelength (nm)	τ1 (ps)	τ2 (ps)	τ3 (ps)
Neat	415	26	77	264
	448	22	96	315
	475	25	98	381
	491	29	92	380
	510	44	160	521
iPAm	415	39	125	484
	448	24	99	370
	475	49	329	/
	491	68	418	/
	510	71	401	/

Table S2 PL lifetimes obtained by fitting with a multi-exponential decay function the time-resolved PL signal at different wavelengths for both neat and iPAm modified films. The film with the additive signals at 475, 491 and 510 nm show a long tail with a decay much longer than the time range of the measurements.

	Wavelength (nm)	τR (ps)	τ1 (ps)	τ2 (ps)	τ3 (ps)
Neat	403	/	/	/	/
	432	/	0.2 ± 0.1	15 ± 2	/
	462	/	0.8 ± 0.1	14 ± 2	158 ± 2
	480	0.2 ± 0.1	0.7 ± 0.1	24 ± 2	128 ± 2
	507	0.3 ± 0.1	/	116 ± 2	680 ± 30
iPAm	403	/	<0.1	41 ± 2	/
	432	/	0.2 ± 0.1	26 ± 2	730 ± 30
	462	/	0.5 ± 0.1	25 ± 2	620 ± 30
	480	0.1 ± 0.1	/	36 ± 2	640 ± 30
	507	0.4 ± 0.1	/	202 ± 2	1490 ± 30

Table S3. FTTS fit results. Time constants obtained by fitting the dynamics of the main features on the transient transmission spectra of both neat and iPAm-modified films. Signals fitted by a combination of exponential rising (τR) and decays (τ1, τ2 and τ3). Errors are evaluated considering the instrument response function of the experimental setup and the parameters used for the measurements.

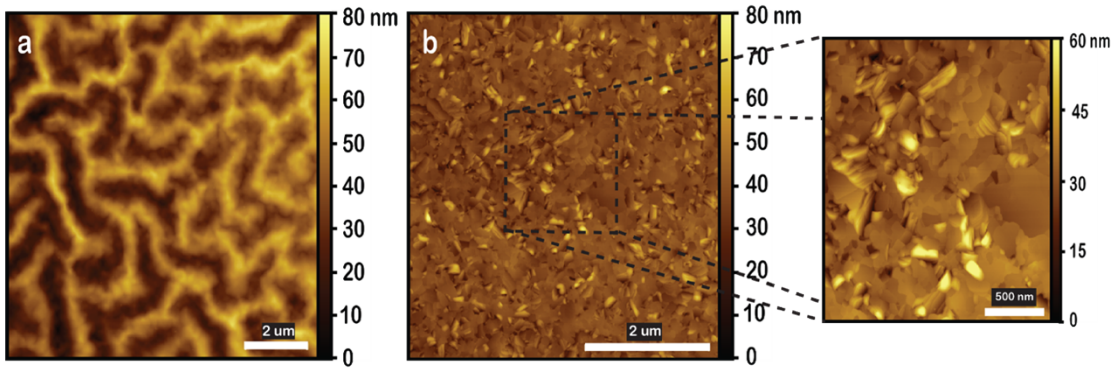

Fig. S4 AFM micrographs of nominal <n>=2 samples for (a) the neat and (b) iPAm systems. On the right side of (b) is shown a zoom-in of the iPAm-modified film.

The wrinkle structure is visible even at a larger scan size of 10 µm x 10 µm. The iPAm-modified system was captured at scan size of 5 µm x 5 µm in order to detect the incrustation of small crystallites with random orientation formed during the crystallisation of the perovskite film. To appreciate further these flat crystals a zoom-in of the iPAm system film was taken with a scan size of 2 µm x 2 µm.

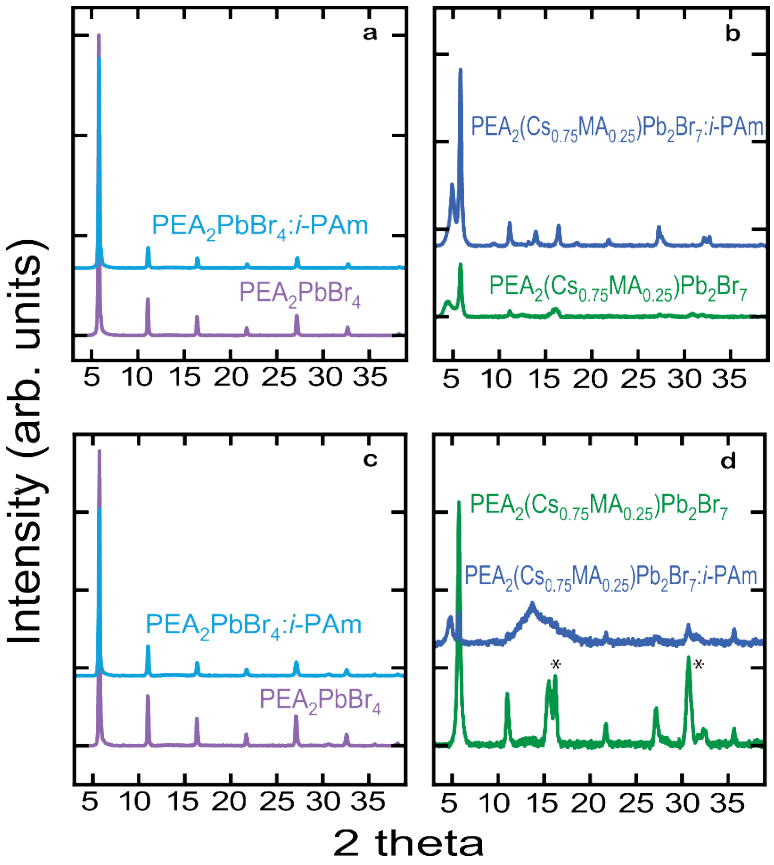

Fig. S5 Powder X-ray diffraction patterns (XRD) of n=1 (2D) and <n>=2 layered perovskite films for the neat and iPAm systems. Films **(a,b)** deposited on quartz and **(c,d)** on PEDOT.

The RP crystallisation for the 2D control-perovskite samples deposited on PEDOT shows the emergence of two more diffraction peaks compared to their analogous when deposited on quartz. These diffraction peaks are located in 2θ= 30.5˚ and 2θ= 35.6˚.

The RP crystallisation for the <n>=2 perovskite samples deposited on quartz (**Fig. S5 b)** shows a mixture of 2D and 3D perovskite phases, including a new diffraction peak at a relatively low value of 2θ (2θ<5˚). When these films are deposited on PEDOT the neat system is highly oriented with clear identification of 3D perovskite diffraction peaks located at 2θ= 16.2˚ and 2θ= 30.7˚ (peaks marked with *). The latter is also present for the iPAm system.