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## **Beyond humidity: the underlying phase transitions in cesium-formamidinium lead halide perovskites**

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Lead halide perovskites have shown excellent optoelectronic properties, yet they are sensitive and unstable under humidity. Herein, we did an in-situ humidity X-ray scattering study to unravel the intermediate and final degradation phases of cesium-formamidinium lead halide perovskites. It was observed that the origins of phase transitions in lead halide perovskites go beyond humidity: the humidity carrier gas, stoichiometry, and composition play an important role in the degradation kinetics.

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