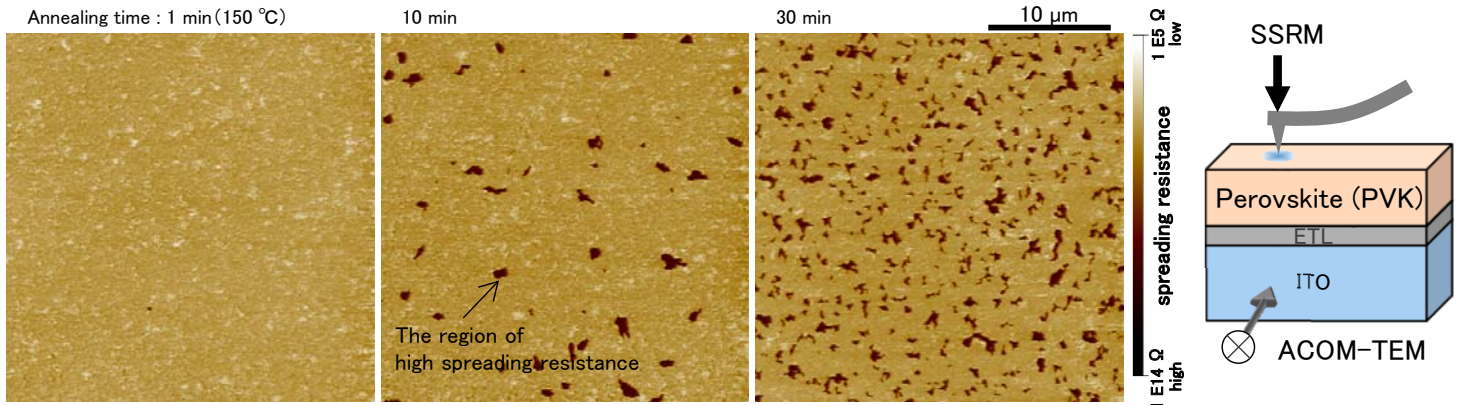


Evaluation of electrical characteristics and crystalline in perovskite solar cells

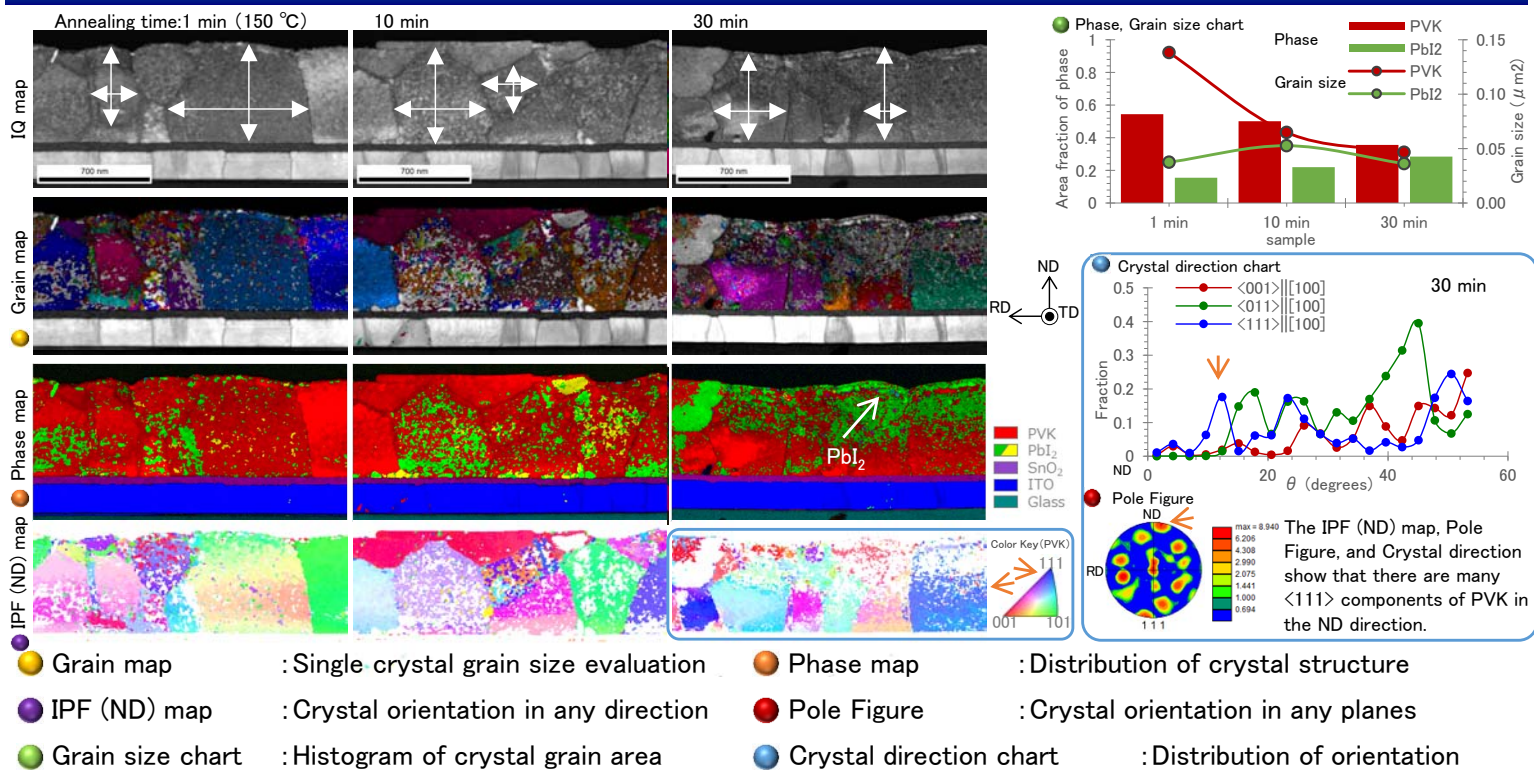
Lead halide perovskite solar cells can be easily fabricated by solution coating and drying. Samples were prepared with different heat treatment times at the same one of 150 °C under nitrogen atmosphere. Here we evaluated the surface spreading resistance of the perovskite layer by SSRM measurements, the particle size or the phase fraction of perovskite (PVK) and PbI_2 phases, and crystal orientation by ACOM-TEM analysis.

The conductivity evaluation of PVK by Scanning Spreading Resistance Microscope (SSRM)



We evaluated to surface roughness and the distribution of spreading resistance near the surface by SSRM. The result showed that the regions of high spreading resistance on the surface of the PVK layer increase with heat treatment.

The crystal phase and the crystal orientation by Automated Crystal Orientation Mapping (ACOM-TEM)



The results of ACOM-TEM analysis showed a decrease in PVK phase and particle size, and an increase in PbI_2 phase with heat treatment. In addition, [001], [011], and [111] orientations with respect to the ND direction could be distinguished and evaluated.

Sample was provided by Dr. Wakamiya, Kyoto univ., Japan

We are able to obtain the indices for material development from multiple analysis such as these one.