

# Application of Light-Modulated Scanning Tunneling Spectroscopy (LM-STS) to Pentacene-based Organic Solar Cells

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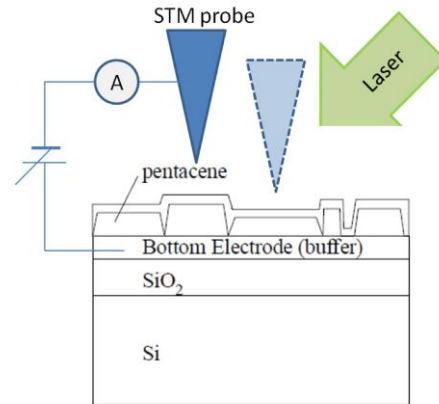
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It is well known that the performance of organic thin film solar cells is strongly influenced by the crystal structure of the donor-acceptor materials in the devices. However, the structure is so inhomogeneous and complicated that it is hardly known how the local structure affects the overall performance of a device precisely. In this study, we investigate the local performance of pentacene-based organic thin film solar cells using light-modulated scanning tunneling spectroscopy (LM-STS) and discuss the relationship of the local performance with the local structure of organic materials. Electricity generation efficiency is mapped to see how the thickness, domain size and domain boundaries affects the local performance of solar cells.

## References:

O. Takeuchi et al., Applied Physics Express 7, 021602 (2014).



**Figure:** LM-STS system