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HIGHLY SENSITIVE AND HIGH-SPEED IMAGING CARBON NANOMATERIALS BY TRANSIENT ABSORPTION MICROSCOPY

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To achieve producing and characterizing 2D materials at large scale as well as controlling and exploiting unique local properties, we need methods that can quantitatively and rapidly analyze 2D materials with ability to reveal local properties, such as domain boundaries. In this presentation, we report a transient absorption (TA) imaging method for fast visualization, quantitative

layer analysis of graphene and mapping of grain boundaries in ambient condition. Specifically, images created based on TA intensity and slow TA decay constant at each pixel both mapped the grain boundaries in graphene with an unprecedented 1,000 frames per second imaging speed.

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