

Abstract Submitted  
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**First and second order coherence of exciton-polariton condensates** G. ROUMPOS, C.W. LAI<sup>1</sup>, E.L. Ginzton Lab., Stanford University, USA, A. FORCHEL, Technische Physik, Universitat Wurzburg, Germany, Y. YAMAMOTO<sup>2</sup>, E.L. Ginzton Lab., Stanford University, USA — The microcavity exciton-polariton system offers the possibility to study condensed matter physics with optical techniques. In particular, condensation of microcavity exciton-polaritons in momentum space, as well as spontaneous buildup of spatial and temporal coherence, were recently demonstrated. We investigate the first and second order coherence of exciton-polariton condensates both in coordinate and in momentum space. We measured the spatial coherence length of up to 20  $\mu m$ , while  $g^{(2)}(t=0)$  was measured to be close to 2 for appropriate near- and far-field filtering. This experiment provides insights into the phase and intensity fluctuations induced by polariton interactions.

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