

Abstract Submitted
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Temperature dependence of polaritons in ZnO based hybrid micro-cavity RYOKO SHIMADA, SANKAR DAVULURI, HADIS MARKOC, ARUP NEOGI — We have studied the temperature dependence of cavity polaritons in bulk ZnO-based hybrid microcavities. The bulk ZnO-based micro cavity is formed by 36 pairs of AlGa_N/(Al)Ga_N distributed Bragg reflector at the bottom of $(\lambda)/4$ thick ZnO cavity and eight pairs of SiO₂/SiN DBR as top mirror. Shift in exciton resonances with temperature resulted in shift in the energy levels of upper and lower polariton modes. The magnitude of observed energy shifts in polariton modes is dependent on the angle at which photoluminescence is collected. It can be possible to obtain either a upper or lower polariton mode that is stable over a long range of temperature by selectively collecting the polaritons modes emitted at a particular angle. The temperature dependent carrier dynamics of the upper or lower polariton mode has been studied by time resolved spectroscopy.

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