

## PL-1.2

### Exciton-polariton laser

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In this paper, we present a review of the investigations realized in the last decades of the phenomenon of the Bose-Einstein condensation (BEC) in the system of two-dimensional cavity polaritons in semiconductor nanostructures. The conditions at which the excitons interacting with cavity photons form new type of quasiparticles named as polaritons are described. Since polaritons can form in a microcavity a weakly interacting Bose gas, similarly to the exciton gas in semiconductors, the microcavity exciton-polariton BEC emerged in the last decades as a new direction of the exciton BEC in solids, promising for practical applications. The high interest in BEC condensation of exciton-polaritons in semiconductor microcavities is related to ultra-low threshold lasing which has been demonstrated, in particular, for an electrically injected polariton laser based on bulk GaN microcavity diode working at room temperature.