

POLARIZATION PHASE TRANSITION
TO THE SUPERRADIANCE REGIME
OF THE INVERTED SYSTEM
OF ELECTRONS ON HIGH
LANDAU LEVELS

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S u m m a r y

The equidistancy of energy levels of generating systems usually is an obstacle for the laser regime. But in the case of superradiation of Dicke (SR) the equidistancy may be even an advantage provided that the coherence volume is small so the absorption of radiation is negligible. By the method of mean self-consistent field, the conditions are found under which the polarization phase transition occurs in the inverted system of nonrelativistic electrons on high Landau levels within the limits of “coherence domains” with the sizes smaller than the wavelength of cyclotron radiation. Then all N_0 dipoles of the domain, rotating with the gyrofrequency, become aligned in one direction (phase) and the intensity of their collective dipole radiation becomes proportional to N_0^2 .