



The waveguide model of the Auroral Kilometric Radiation generation.

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The waveguide model of the Auroral Kilometric Radiation generation describing the development of the electron cyclotron maser instability in sources of finite perpendicular extension is evolved. The general dispersion equation descriptive of wave propagation in an arbitrary direction is obtained. The numerical solutions of dispersion equation have shown that the instability growth rate is increased as the wave vector component directed along cavity boundaries increases. The eigen waveguide modes are found and for general case is demonstrated that a structure of electromagnetic field is asymmetric inside the source. The wave polarization is strongly coordinate dependent and the electric field component transverse to the source boundary may be significantly greater than the component directed along the boundary. The wave amplification factors inside the source region are calculated and comparison with experimental data is discussed.