DETERMINATION OF EXCITATION TEMPERATURES FOR VIBRATIONAL AND ROTATIONAL MOLECULAR LEVELS IN AN ATMOSPHERIC PRESSURE GAS-DISCHARGE PLASMA

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S u m m a r y

A procedure for the determination of excitation temperatures of vibrational and rotational molecular levels in an atmospheric-pressure gas-discharge plasma with the use of the SPECAIR computer code has been proposed. To simplify and accelerate the processing of radiation spectra, calibration curves for the determination of vibrational and rotational temperatures by analyzing the emission bands of molecules OH(A–X), N_2(C–B), N_2^+(B–X), CN(B–X), and C_2 (d–a Swan transitions) were plotted. The method developed was tested by evaluating the plasma parameters of a discharge in the gas channel with a liquid wall.