

## **Components excited state in the upper atmosphere**

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The role of metastable ionospheric components of oxygen and nitrogen atoms and molecules is considered for F2-region ionospheric processes. The main attention was paid to investigation of the processes with oscillatory excited state of the nitrogen molecules  $N_2(Nu)$ . The density calculation of this component was made for the ten oscillating levels ( $Nu=1\dots 10$ ), using by the time-depended diffuse equation. Boltzman distribution was not taking into account. The role of diffusive and photochemical processes in  $N_2(Nu)$  dynamics was discussed. The calculations was made on a base of ionosphere-plasmasphere model along magnetic field tube with possibility to calculate time-altitude distributions of main ionospheric ions, including ions excited states.