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# ASTROPHYSICS AND PARTICLE PHYSICS

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### Calculation of ionospheric penetration points for GPS navigation satellites

The algorithm of calculating the position and over flight time of ionospheric penetration points for GPS navigation satellites in the field of the antenna pattern (AP) of Sura facility (r/p Vasilsursk, Nizhny Novgorod Region, NNSU) and ionosonde Cyclone (r/p Orekhovka, Republic of Tatarstan, KFU) is shown in the report. Calculation of ionospheric penetration points of GPS satellites is needed to determine the interval of finding satellites within the AP and further calculation of the total electron content (TEC). Determination of the TEC will allow diagnosing the state of the ionospheric plasma and the main parameters of the emerging large-scale disturbances within the disturbed region of the ionosphere limited by angular size of the AP.

### Biography

Timur Prokhorov is the student of Kazan Federal University. He is learning and engaged in research activities at the Department of Radio Electronics. His previous work was about programming analog integrated circuits. But now, he has interest to study the state of the ionosphere, because this is one of the main directions of scientific activities at the department.

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