Contribution ID: **1008** Type: **Poster**

Quasiclassical trajectories of spinning electron in hydrogen atom

Monday, 24 October 2022 18:25 (5 minutes)

We consider the motion of a non-relativistic charged particle with an arbitrary spin in central potential Ze/r in terms of classical mechanics. We show that the spin-orbital interaction causes the precession of the plane of orbit around the vector of total angular momentum. The angular velocity of precession depends on the distance of the particle from the center. The effective potential for in-plane motion is central, with the corrections to Coulomb terms coming from spin-orbital interaction. The possible orbits of quantum particle are determined by Bohr-Sommerfeld quantization rule. We give the examples of orbits corresponding to small quantum numbers, which were obtained by numerical integration of equations of motion. The energies of stationary states are determined with account of spin-orbital interaction

Primary authors: Mr SINELNIKOV, Nikita (National Research Tomsk State University); Dr KAPARULIN, Dmitry (National Research Tomsk State University); Dr BREZHNEV, Yuriy (National Research Tomsk State University)

Presenter: Mr SINELNIKOV, Nikita (National Research Tomsk State University)

Session Classification: In-person poster session & welcome drinks

Track Classification: Theoretical Physics