

Abstract: In this thesis we deal with interaction of a point charge with conductors. The behaviour of conductors in the electrostatic field of a point charge (but also in the general electrodynamic field) is well known. The presence of a conductor creates a force that causes the free point charge to move. However, the solution of this electrodynamic problem is given very little attention and is therefore the subject of our study. Specifically, we focus on the study of the motion of a point charge placed in the presence of a conductor, which is not generally ideal (it has certain non-zero electrical resistance). In most cases, we solve the problem in a quasi-static approximation (within classical physics). In only one case, and the point charge is located above an ideally conductive plane, we will try to find a relativistic solution. We will try to extend the acquired knowledge about the behaviour of a system of moving point charge in the presence of a conductor to the case of a moving conductor. So, our last subject of study will be the interaction point charge with moving conductors.