This thesis contains a study of electromagnetic processes created in heavy-ion collisions during interaction of electromagnetic fields of nuclei. During these collisions, dimuon pairs are produced via $\gamma\gamma \to \mu^+\mu^-$ processes. Dimuon pairs then penetrate quark gluon plasma created in heavy-ion collisions and their kinematics may be altered by the presence of the plasma. The aim of this thesis is to develop simple geometric model that is then implemented and a program for measuring the path length of products of electromagnetic processes is delivered. The simulation of centrality dependent acoplanarity broadening is performed. Centrality dependent acoplanarity broadening of dimuon pairs produced in $\gamma\gamma \to \mu^+\mu^-$ processes was previously measured by the ATLAS detector at the LHC in Pb+Pb collisions at $\sqrt{s_{NN}} = 5.02\,\text{TeV}$. It was shown that model can reproduce the distribution of acoplanarity measured by ATLAS for $\alpha > 2.10^{-3}$ rad when the quadratic configuration of path-length dependence of acoplanarity broadening is used. On the contrary, measurement of acoplanarity distribution for $\alpha < 2.10^{-3}$ rad cannot be reproduced by the model.