In everyday life we can find many applications of infrared cameras they are mainly used to detect heat losses . IR cameras are applied in construction industries to determine heat losses in buildings from walls, windows or doors of or losses directly related to ventilation installations. These applications demonstrate the suitability of of IR cameras usage to determine temperature distribution on the walls and other building components this in turn allow to indicate locations of heat losses but do not give possibility to quantitative calculations.

Aim of the project is to develop a new method for measuring heat fluxes from flat surface exchanging heat by natural convection using a thermal imaging camera. Unfortunately, infrared imaging is only a qualitative method of diagnostic, indicates only locations of heat loss in a building, eg .: by poorly made insulation or its defects, thermal bridges, leaky doors or windows etc. However it cannot help to determine t values of these losses.

The rationale presented here for possible funding of our research subject is the fact that previous research results shows a significant discrepancy. This fact is caused by many factors including following: trouble with precise measuring heat flow transferred from the heated surface to environment and determination of heat transfer coefficient. The accuracy of measurement of this quantities increase with: density of the heat flow, temperature of surface and the size of the surface. Unfortunately, heat transfer from free convection, especially in laminar way for $Ra < 10^7$, which condition is very difficult to obtain, due to equation $Ra = g \beta \Delta t l^3/(\nu a)$. Because the increasing temperature of the surface and object size moves us to transitional or turbulent state $Ra > 10^7$. However, experiments results made on small objects at low temperatures, have more than 50% divergence.

Usually, results of basic research opened directions for further research and practical applications after some time. More often a new discover is made by coincident, sometime by intuition but in these researches subject matter is taken consciously and rationally focused on the development of new experimental methods to study convective heat transfer, which verification of theoretical solutions are impossible. Current situation caused that the scientists carefully avoided dealing with laminar free convection, especially because it has no practical use. The results will help to reverse this trend by experimental research simplification and increase their accuracy. This effect give opportunity for the growth of scientific interest of laminar free convection.