

## Homework №3

### Summary

Graphene is a single layer of carbon atoms that is located inside graphite. Graphene as a set of unique optical, electrical and mechanical properties, for example, from a mechanical point of view it is the most durable material existing in the world. It is the most electrically conductive and at the same time flexible material. It is no coincidence that Cambridge is one of the leading centers for graphene research. Dr. Krzysztof Koziol's research focuses on carbon nanomaterials. The idea is to improve the existing conductor and go beyond what copper can give us. In the laboratories of Professor Clare Gray, they are interested in how batteries and supercapacitors work, and they are especially interested in developing new methods. They are really thinking about how graphene could play a role in a new supercapacitor or a new battery. In the research group of the Professor of Mete Atature, they are working on a number of materials for physical systems. Two-dimensional materials, one of which, but not the only one, is graphene, offer a fundamental limit of proximity to something else. They say that 2d materials make it possible to create such platforms that can become the technology of the future. At the moment we know that there are almost 5000 materials that have a structure similar to that of graphite. The mission of this center is also to consider other two-dimensional materials both by themselves and in combination with them or with the field. Graphene's flagship is designed for 10 years under a one-billion-euro program that began in October 2013 and will end in 2023. I liked the Dr Krzysztof Koziol's idea the most because electrical conductors are very useful these days. And, it seems to me, the professor Clare Gray's ideas are more abstract. The professor Mete Atature's idea is too far from the present time. In my opinion, electrical conductors are the technologies of the future.