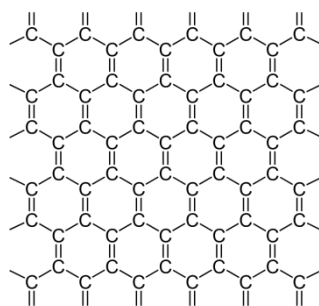


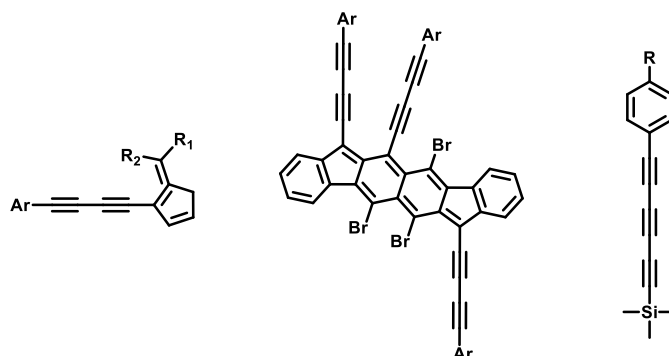
Carbon rich compounds or simply allotropic forms of carbon are extremely interesting research objects that are investigated by groups of scientists at the world's best universities. One of the most popular compounds (or rather materials) of this type is the widely known graphene.



Chemical structure of graphene.

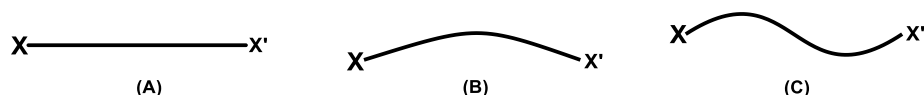
The methods to obtain carbon-rich compounds range from almost purely physical (extraction, exfoliation) to complex synthetic strategies from the repertoire of classical organic chemistry, often with the use of expensive catalysts containing transition group metals (ruthenium, rhodium, iridium, platinum, palladium, gold).

The presented in the research project species belong to the group of carbon-rich compounds that can constitute a family of important substrates for the preparation of more complex carbon architectures.



Proposed in the research project carbon-rich polyyne compounds.

Polyyne compounds can have different structures and the conformation of the carbon chain can be significantly distorted from linearity. Their shape may vary and can for example form a symmetrical or asymmetrical bow or take an S-shape as shown below. Such compounds can also have the shape of a closed circle occurring in two forms, i.e. conjugated or cumulenenic.



Carbon chain conformations in polyyne compounds: linear (A), symmetrical bow (B), or S-shape (C).

The latest research shows that polyyne compounds have great application potential and can be used in nanoelectronics as molecular wires and switches.