2. Streszczenie w języku angielskim

Alk-2-en-1ones and alk-2-yn-1-ones are examples of α,β-unsaturated carbonyl compounds which are widely used in organic chemistry to form new carbon-carbon and carbon-heteroatom bonds.

In my PhD thesis, I have investigated the usage of alk-2-en-1ones and alk-2-yn-1-ones as a substrate in the synthesis of new perylene derivatives. Additionally, I have studied the influence of carbonyl group in complexes type $ArCOC{\equiv}CAuPEt_3$ on the fluorescent properties and structures of such compound.

I developed new, one-step and efficient methods of preparation, from perylene and alk-2-enoic acid, 5,6-dihydro-4*H*-cyclopenta[*b*]perylen-4-ones and 2,3-dihydro-1*H*-benzo[*cd*]perylen-1-one. I have also developed a convenient one-pot methodology of the synthesis of 1-acyl-2-alkylbenzo[*ghi*]perylenes via annulation of the bay region of perylene in reaction with 1-arylalk-2-yn-1-ones catalysed by triflic acid.

I have also synthesised new gold(I) complexes type $ArC{\equiv}CAuPEt_3$ and $ArCOC{\equiv}CAuPEt_3$ and studied their structure and fluorescence properties in solution and solid state.