**Thin and Thermally Stable SAMs for Formation of Highly Conductive or Highly Insulating Organic Monolayers on Metals**

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Self-assembled monolayers (SAMs) on metal substrates are an important part of modern interfacial physical chemistry and advanced nanotechnology. The robustness of SAMs strongly depends on their thermal stability, which, together with electric conductivity, are the key parameters for their applications in molecular/organic electronics and photovoltaics. In this context, using a multidisciplinary approach, we address here the structure, thermal stability and conductivity of SAMs formed on metal substrates (Au or Ag) using different bonding groups such as thiols, selenols, carboxylic acid and carbenes. Our recent results [1-3] indicate possibility of formation thin well, defined monolayers which exhibit exceptionally high thermal stability and are either highly insulating or highly conductive which makes them an interesting nanomaterial for modification of gate or drain/source electrodes in OFET devices, respectively.

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[3] Wróbel, M.; Cegiełka, D.; Asyuda, A.; Kozieł, K.; Zharnikov, M.; and Cyganik, P. ***submitted* 2022**