

# Thermal decomposition of graphene on different substrates

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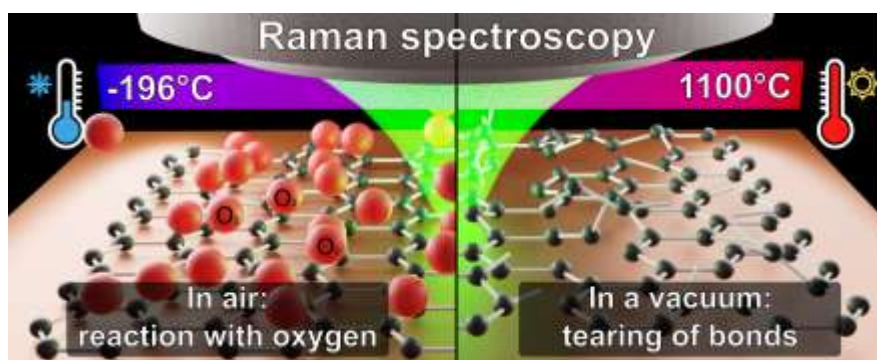
Abstract

For the application of graphene, it is necessary to know how this 2D material behaves at reduced and increased temperatures on different substrates. In this work, different substrates were coated with graphene and the thermal decomposition of graphene on these substrates was monitored by Raman spectroscopy over a temperature range of -196 to 600 °C in air and up to 1100 °C in vacuum. The decomposition temperature of graphene depended linearly on the substrate's coefficient of thermal expansion (CTE). It was also found that graphene decomposes differently in air and in a vacuum, where graphene decomposed at twice the temperature than in air.

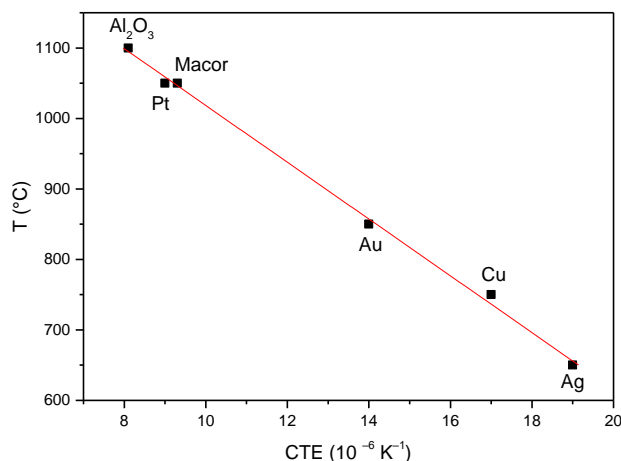
References

- [1] Průcha, L., Lejeune, M., Kizovský, M., Materna Mikmeková, E., Materials Today Communications 35 (2023) 105921. <https://doi.org/10.1016/j.mtcomm.2023.105921>.

Figures



**Figure 1:** The different means of graphene decomposition in air and in a vacuum [1].



**Figure 2:** The dependence of the CTE on the decomposition temperature of graphene in a vacuum [1].