# Graphite Polytypes up to 5 layers

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Abstract

In recent years graphene became a Materia of interest, as more knowledge of its unique electronic and mechanical properties has been discovered[1]. especially few layers graphene (FLG) that exhibit different properties as the different options for polytypes occur[2]. These polytypes are known as Bernal and Rhombohedral polytypes. With help from Raman spectroscopy over the years more polytypes had been found in 4-layers graphene[2]. We now know that even more polytypes are possible when going to five-layer graphene, in this work we shall introduce them, explain the methods to identify them and discussed their Raman spectra.

References

[1] Neto, A Castro; Peres, N. M. R.; Novoselov, K. S.; Geim, A. K. (2009). "The electronic properties of graphene" (PDF). Rev Mod Phys. 81 (1): 109–162
[2] Konstantin G. Wirth, Jonas B. Hauck, Alexander Rothstein, Hristiyana Kyoseva, Dario Siebenkotten, Lukas Conrads, Lennart Klebl, Ammon Fischer, Bernd Beschoten, Christoph Stampfer, Dante M. Kennes, Lutz Waldecker, and Thomas Taubner ACS Nano 2022 16 (10), 16617-16623

Figures

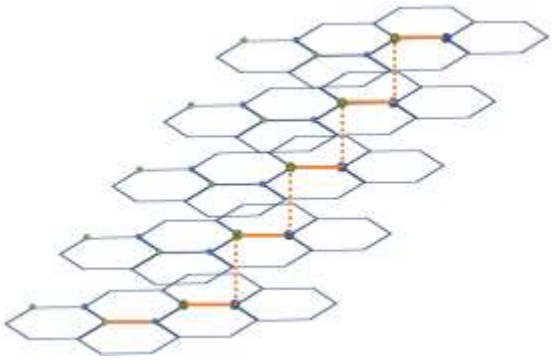

**Figure 1:** 5 layered Graphite Rhombohedral polytype

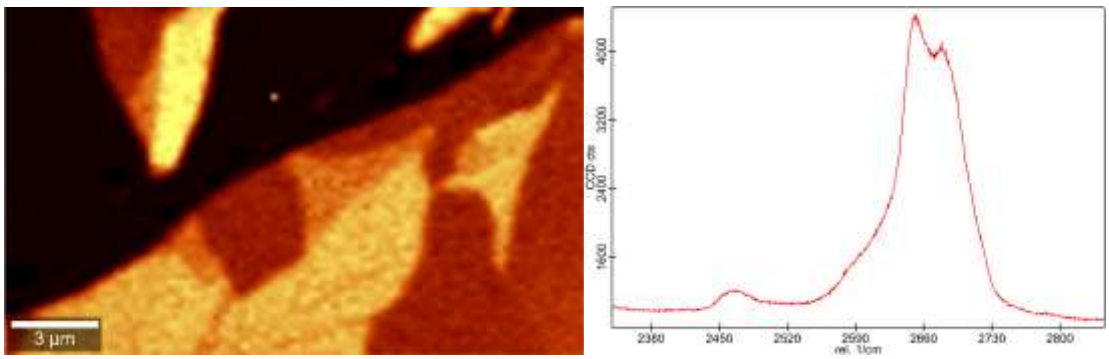


**Figure 2:** Rhombohedral Polytype domains, and 633nm Raman spectra