

After silicene, epitaxial germanene: a newborn in the graphene family

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Silicene has been called graphene's cousin [1]. Germanene, its germanium counterpart, is predicted to have extremely high mobilities of its charge carriers, to behave as a two-dimensional topological insulator, nearly up to room temperature, and to be possibly a high temperature superconductor.

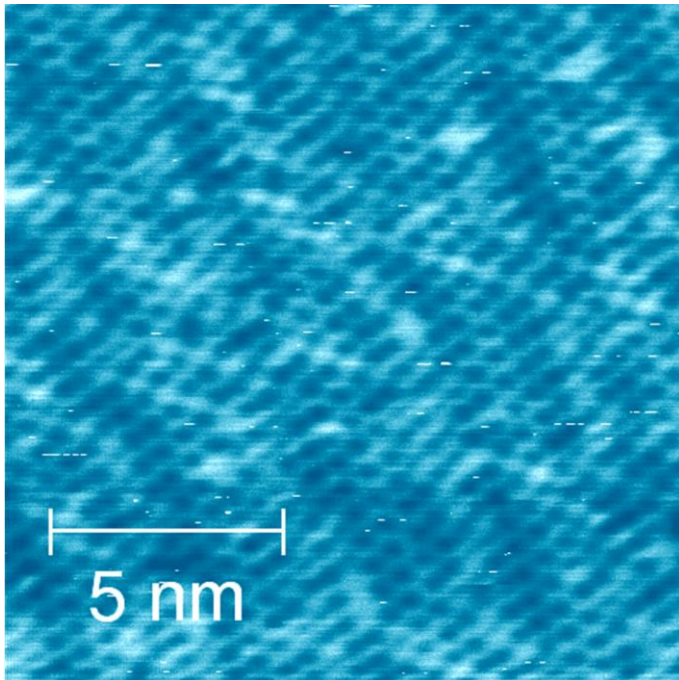
After summarizing our realization of single layer [2] and multilayer [3,4,5,6] epitaxial silicene on silver (111) substrates we will present hints of the synthesis of epitaxial single layer germanene, obtained through a synergetic combination of STM imaging and synchrotron radiation photoelectron spectroscopy measurements.

Clearly, these novel synthetic two-dimensional materials, which do not exist in nature, might open the way to practical applications because of their direct compatibility with the current nano/micro electronic technologies.

References

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Figure



STM topograph of the germanene monolayer -1.12 eV; 1.58 nA