

51 years old: the golden age of germanene

Professor Guy Le Lay

Aix-Marseille University,
PIIM-CNRS, France



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14:00 ~ 15:30

場所: MS講義棟1階 小ホール
& Webex

講演要旨:

2012 has seen the birth of silicene and has been the *annus mirabilis* of this first artificial transgraphene two-dimensional (2D) material. Germanene, seemingly two years younger, and its first successor, is extremely promising, especially since it is potentially a near room temperature 2D topological insulator.

In reality, the signature of germanene formed in a bottom-up approach by segregation through a thin epitaxial gold film grown in situ on a germanium (111) surface, had been encrypted already 51 years ago in a strange low energy electron diffraction pattern taken at 16 eV primary energy, featuring 24 sharp spots arranged in 12 doublets on a ring. Having no Rosetta stone to decipher it, this pattern could not be decoded and remained buried in a 1971 thesis. It was excavated recently and duly interpreted in terms of germanene synthesis by segregation thanks to the most advanced modern surface science toolkit.

In this seminar, I will retrace this ancient discovery and look into the future of germanene with its fascinating prospects, typically for the growth of vertical and lateral heterostructures, and for the emergence and control of Majorana fermions.

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お問い合わせ先: 共通事務管理課 共通事務第三係 (E-mail: ms-secr)