Formation of graphene and hexagonal boron nitride on Rh(111) studied by in-situ scanning tunneling microscopy

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Publications and patents

Publications

• *How boron nitride forms a regular nanomesh on Rh(111),* PHYSICAL REVIEW LETTERS **104,** 096102 (2010), Dong G., Fourré E. B., Tabak F. C., Frenken J.W.M.

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Patents

• Dong G. PATENT APPLICATION NUMBER 1202080.6

• Dong G., van Rijn R. PATENT APPLICATION NUMBER 1201600.2.

Curriculum Vitae

Guocai Dong was born in Heilongjiang province, China on May 25th 1981. In 1999, he was admitted to Peking University, Beijing China, after winning the national prize in the Chinese Physics Olympiad. In 2003, after receiving his Bachelor degree in the Physics Department of Peking University, he started his research life in the field of surface science in the group of Prof. Jinfeng Jia and Prof. Qikun Xue in the Institute of Physics, CAS, Beijing China, specializing in “Growth of metal films on Si(111) studied by STM”. In 2006, he joined the group of Prof. J.W.M. Frenken, in Leiden University, Leiden the Netherlands, as a PhD candidate working on the variable temperature scanning tunneling microscope. Initially, he started preparing experiments on the diffusion of metal atoms on the Si(111) surface, a topic that fit well in the collaboration with Prof. Qikun Xue. However, he got inspired by another project, namely the formation of *h*-BN nanomesh overlayers on Rh(111), that was running in parallel on the same instrument. After systematically identifying and solving all the technical imperfections in the instrumentation, he was able to routinely produce STM movies of the formation and growth of the nanomesh overlayer under a wide range of constant or varying conditions. After his success with experiments on *h*-BN, he moved his attention to a similar system, the growth of graphene on Rh(111). After finishing the two projects and writing them up as a draft for his PhD thesis, he extended his scientific research to a new and related challenge, namely large-scale and potentially commercial production of graphene, working in the same research group in Leiden as a research fellow. As part of this, he also actively took part in the initialization of a startup company named Applied Nanolayers BV. He is the first author of 2 published papers, co-author of 5 other published papers and inventor of 2 international patents.