There have been many structural studies of one-dimensional superlattices grown by the molecular beam epitaxial (MBE) method. \( \ldots \)


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Small clusters draw much attention because of their specific structures and physical properties. Electron microscope observations of them have been limited to sizes of 10 - 100 nm, except recent ones by Iijima. We have recently succeeded in revealing structural change of gold atomic clusters growing on a graphitized carbon using a high resolution UV electron microscope designed for in-situ study at 10 Torr level (K. Takayanagi et al., Proc. Xth ICM, Kyoto, 1986). Profile images were recorded on VTR and reproduced on a 16 mm cinefilm. We recognized dark dots forming a Fibonacci sequence. They have some of the unique properties of the novel structure. Here we report the first realization of a quasiperiodic superlattice, where the ratio of alternating layers of GaAs and AlAs forms a Fibonacci sequence. They have some of the unique properties of the novel structure. Here we report the first realization of a configurational Fibonacci superlattice grown by MBE, where the ratio of alternating layers of GaAs and AlAs is the same. The self-similarity of our clusters will be discussed. The synchrotron x-ray studies of our clusters will also be reported at the Congress.

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