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**Crystallographic analysis on growth process of GaAs nanocrystals deposited onto Si(100) surface** HIROYUKI USUI, Venture Business Laboratory, Kobe University, Nada, Kobe 657-8501, Japan, KENSUKE YAMADA, Department of Mechanical Engineering, Kobe University, Nada, Kobe 657-8501, Japan, HIDEHIRO YASUDA, Department of Mechanical Engineering, Kobe University, Nada, Kobe 657-8501, Japan, HIROTARO MORI, Research Center for Ultra-High Voltage Electron Microscopy, Osaka University, Yamadaoka, Suita, 565-0871, Japan — Crystallographic analysis on growth process was carried out for GaAs nanocrystals deposited onto Si(100) by molecular beam epitaxy. Equilibrium crystal shapes of the GaAs nanocrystals at each growth stage were observed by cross-sectional transmission electron microscopy. At the initial growth stage, Stranski-Krastanov wetting layer and faceted nanocrystals with lower aspect ratio were formed. The GaAs nanocrystals at the middle growth stage formed regular pyramids consisting of  $\{111\}$  planes. At the later stage, the shape of GaAs nanocrystals was changed to dome structure consisting of  $\{111\}$  and  $\{311\}$  planes which has lower aspect ratio. This indicates that the GaAs nanocrystals introduced  $\{311\}$  facets to minimize the total surface free energy at the later stage because the surface free energy of  $\{311\}$  facets is smaller than that of  $\{111\}$  facets.

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