We have proposed a direct growth method of graphene on SiC(0001) surfaces induced by KrF excimer laser irradiation. The laser was irradiated in ambient Ar of 500 Pa, and Ar flow rate was 500 sccm. KrF excimer laser with a wavelength of 248 nm was used as a local heating source on the SiC surfaces. Pulse duration of the laser was 55 ns, and repetition rate was 100 Hz. After laser irradiation, Si atoms are sublimated from the SiC surface, and graphene growth is induced due to rearrangement of surplus carbon on the SiC surface. Figure 1 shows a Raman spectrum after laser irradiation at the irradiation condition of 1.2 J/cm² and 5000 shots. As shown in Fig.1, G and 2D band peaks assigned to graphene are clearly observed in the spectrum. In addition, visible light reflectivity at the laser irradiation area, which was obtained by analysing the optical microscope image, decreased only 4.8% as compared with that at non-irradiation area. Because it is known that absorption probability of single layer graphene is approximately 2.3 %, we conclude that single or double layer graphene growth can be achieved by KrF excimer laser irradiation to SiC(0001) surfaces. The D band peak appeared in the Raman spectrum means that the obtained graphene contains defects. It is reported that the intensity ratio of D and G bands (I_D/I_G) in Raman spectra reflects grain size of graphene. The I_D/I_G ratio and the grain size estimated from the ratio in Fig. 1 were approximately 0.4 and 50 nm, respectively.