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1:1 Electron-beam Emission Lithography: a method for MIM e-beam projection

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We have studied an electron lithography method, Electron Emission Lithography , which is capable of printing integrated circuits with an exposure time of only a few seconds[1]. The design of the mask, fabricated by metal-insulator-metal (MIM) structure will be discussed. Patterns printed into electron-beam resist by a 1:1 projection system show the applicability of the mask for lithography purposes. Moreover, the relationship between the thickness of the insulator layer and emission current was investigated for optimal electron emission mask (EEM) lithography. Patterns were transferred to electron-beam resist under magnetic field. The minimum pattern size so far is 100 nm. The pattern image was transferred to electron-beam resist by the 12 nm insulator EEM under magnetic field.

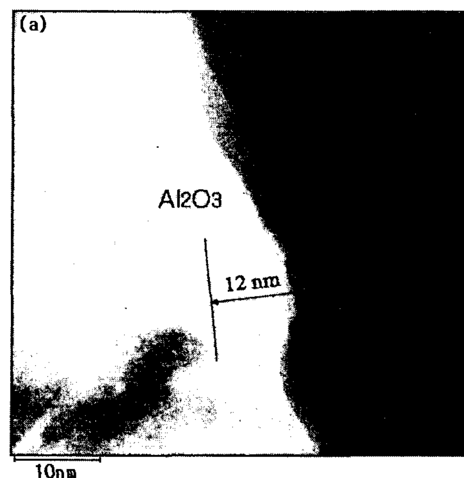

Fig. 1. TEM image (Al_2O_3 Thickness)

[참고문헌]

1. M. Poppeller, E. Cartier, R.M. Tromp, Appl. Phys. Lett. 73, 2835 (1998).