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Title:Extraordinary control of terahertz beam reflectance in graphene electro-absorption modulators

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Abstract:We demonstrate a graphene-based electro-absorption modulator achieving extraordinary control of terahertz reflectance. By concentrating the electric field intensity in an active layer of graphene, an extraordinary modulation depth of 64% is achieved while simultaneously exhibiting low insertion loss ( $\sim 2$  dB), which is remarkable since the active region of the device is atomically thin. This modulator performance, among the best reported to date, indicates the enormous potential of graphene for terahertz reconfigurable optoelectronic devices. &copy; 2012 American Chemical Society.

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