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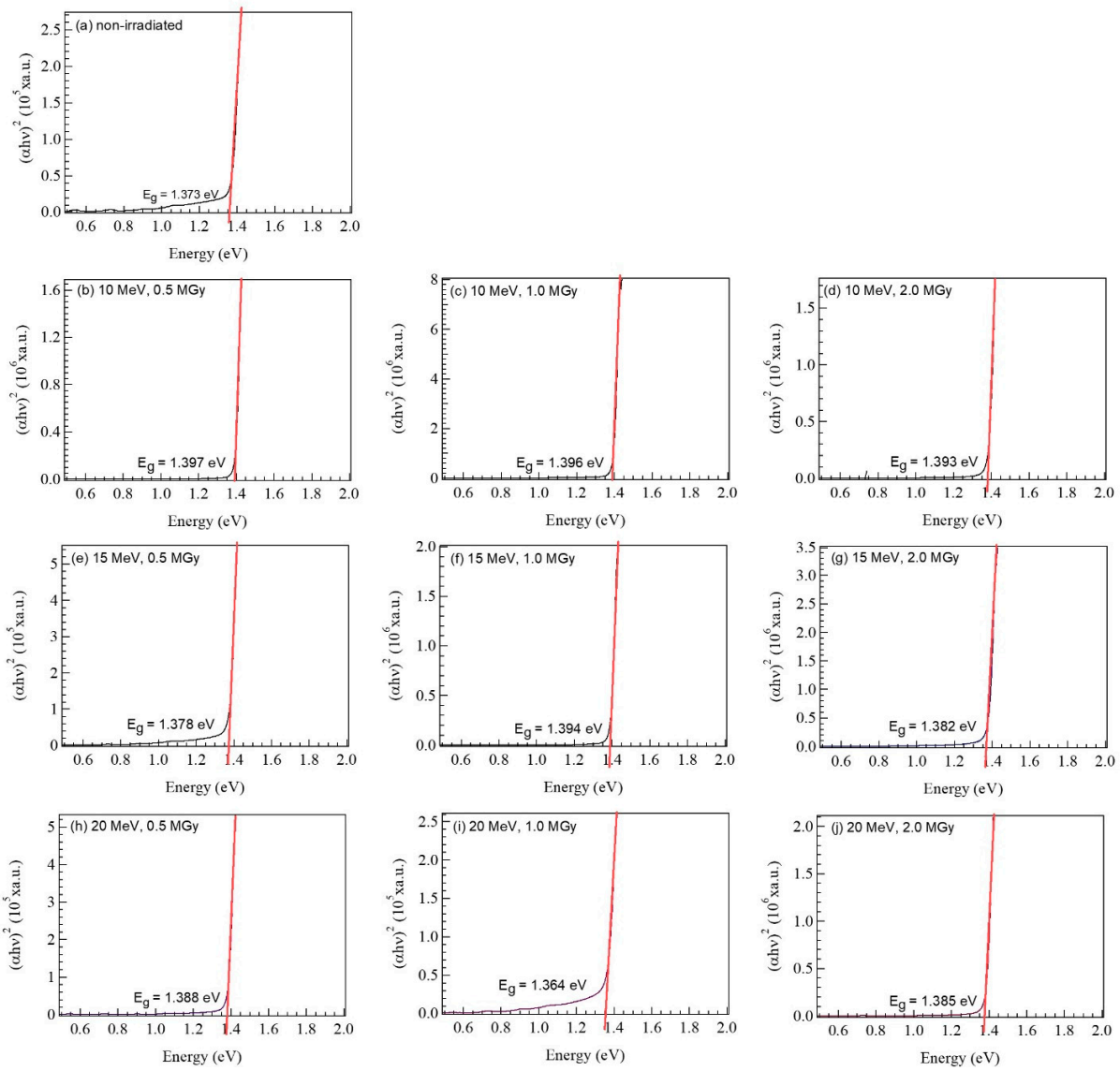



**Figure S1** Tauc plot of $(\alpha h\nu)^2$ vs. photon energy ( $h\nu$ ) of (a) the non-irradiated and (b-j) the irradiated GaAs samples with electron energies of 10, 15, and 20 MeV at electron doses of 0.5, 1.0, and 2.0 MGy.

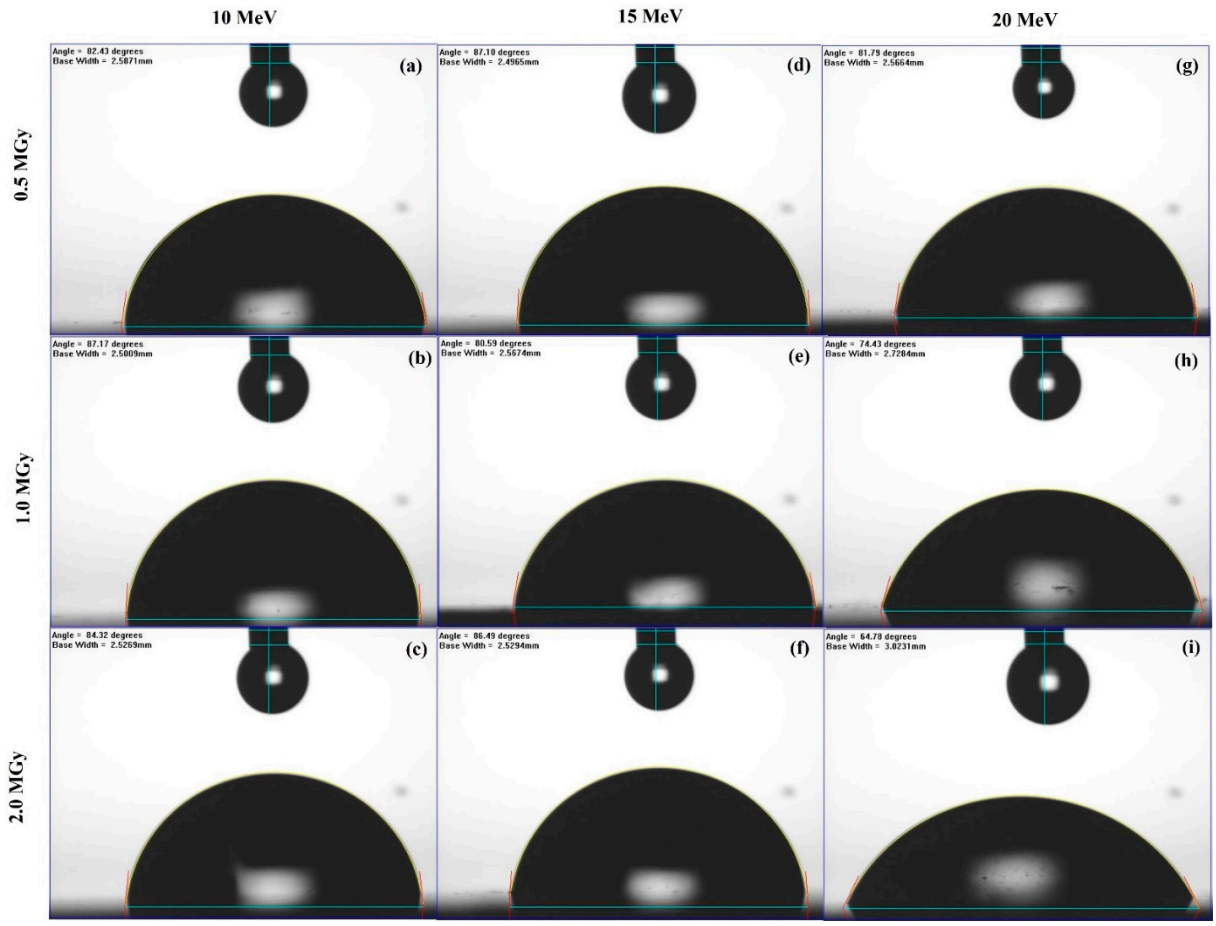



**Figure S2** Contact angle measurement of the irradiated GaAs samples with electron energies of 10 (**a-c**), 15 (**d-f**), and 20 (**g-i**) MeV at electron doses of 0.5, 1.0, and 2.0 MGy, respectively.