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Title:Thermal annealing effect on photoexcited carrier dynamics in GaBi <inf>x</inf>As<inf>1-x</inf>

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Abstract:Carrier dynamics in MBE-grown GaBi<inf>x</inf>As<inf>1-x</inf> layers was investigated by the optical pump - THz probe technique. Rapid thermal annealing at temperatures up to 700 °C has a dual effect on the electron decay characteristics. For the GaBi<inf>0.04</inf>As<inf>0.96</inf> layer it led only to a small change of the decay time, whereas for the layer with x = 0.06 this parameter decreased by two orders of magnitude and became shorter than 1 ps. It can be assumed that the recombination centers in GaBiAs are more likely to occur in the layers with a larger Bi composition, a bigger lattice mismatch with the substrate. © 2011 IOP Publishing Ltd.