Millisecond annealing for the nanoscale

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Semiconductor structures with nanometer dimensions become more and more important in microelectronics and other new emerging technologies. However, the transition from bulk materials to nanostructures often requires significant changes in the process technology, including the change from equilibrium to non-equilibrium processes. In this work, we investigate the formation of nanodots and the modification of nanowires by millisecond flash lamp annealing [1].

In detail, we focus on two specific topics: (i) the formation of InAs nanocrystals in a thin Si layer at laterally defined positions with the help of masked ion beam implantation and flash lamp annealing, and (ii) the high-level doping of Si and Ge nanowires by ion implantation and flash lamp annealing.

References

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