

**Super activation obtained by melt UV laser annealing of highly  
surface-segregated dopants in high Ge content SiGe**

Leonard M. Rubin

*Chief Device Scientist, Axcelis Technologies*

Activation of surface segregated dopants above the solid solubility limit in a high Ge content SiGe substrate has been demonstrated by nanosecond melt UV laser anneal. This exceeds the activation possible with conventional solid-phase annealing. Segregation effects, strongly amplified by the phase changing of the partial melting of the sample during the annealing, play a key role explaining dopant profile redistribution and activation in Si-Ge alloys.