Selective Epitaxy Growth of group IV materials for CMOS devices

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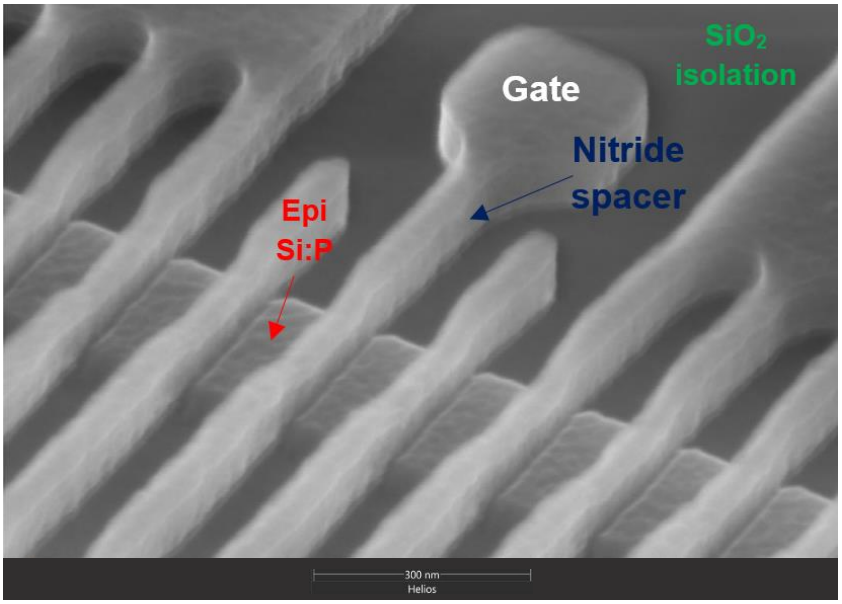

Figure 1 : Tilted SEM image showing the result of selective Si:P epitaxy growth in the source/drain regions of FD-SOI transistors. The image highlights the selective deposition of Si:P exclusively on crystalline silicon seed layers, while dielectric materials remain free of any deposition..

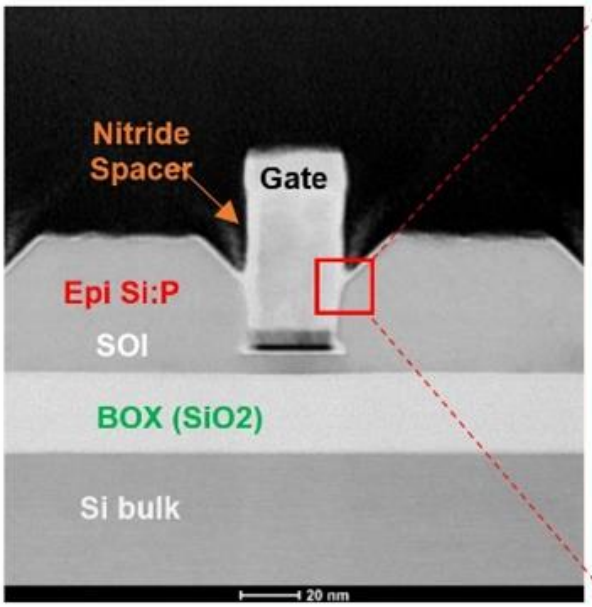

Figure 2 : Cross-sectional TEM image after selective Si:P epitaxy growth in the source/drain (S/D) regions of FD-SOI NMOS transistors. The image clearly shows the selective deposition of Si:P, which occurs only on crystalline silicon seed layers, while dielectric regions remain deposition-free.

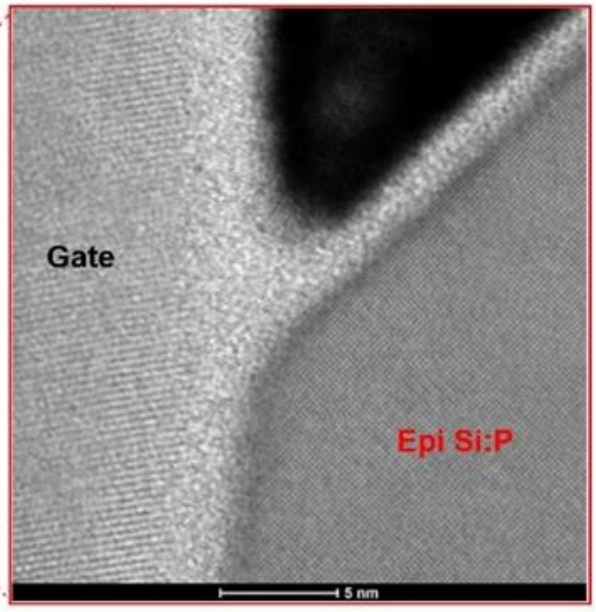

Figure 3 : High-resolution cross-sectional TEM image of the facet near the nitride spacer after selective Si:P epitaxy growth in the source/drain (S/D) regions of FD-SOI NMOS transistors. The image demonstrates the exceptionally high crystal quality of the Si:P epitaxy grown on the silicon seed layer.