

Investigation of the Evolution of Bismuth Layers Deposited on Silicon by MBE

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Abstract. The research focuses on achieving epitaxial growth of Bi layers on Si(111) substrates, which is crucial for device integration in the semiconductor industry. Experimental results show that careful preparation of the Bi monolayer significantly affects the subsequent layer growth. The effect of annealing temperature on the structure of the monolayer is investigated. The deposition of Bi is also monitored by the transition from a seed monolayer to a Bi film with a preferred orientation in the (111) direction using high energy electron diffraction patterns. The study highlights the importance of precise monolayer preparation to achieve high quality Bi films on silicon substrates, which is essential for advancing applications in spintronics and topological materials.

ACKNOWLEDGMENTS

This work was supported by the project MEBioSys with reg. no. CZ.02.01.01/00/22_008/0004634.