

## Interaction of Hf with Si surface: A wiggler radiation study

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**Abstract :** Hf deposited on Si(100) resulted in the formation of HfO<sub>2</sub> and some unstable HfO<sub>x</sub> by reacting with the residual oxygen. Hf 4f core level exhibited a strong Hf<sup>4+</sup> and weak Hf<sup>0</sup> signals corresponding to HfO<sub>2</sub> and Hf silicide. Hf dioxide begins to disintegrate when annealed at 800<sup>0</sup>C into oxidized silicide. Hf deposited on Si extracts the residual oxygen present in the form of SiO<sub>x</sub> O<sub>2</sub> and leads to the formation of HfO<sub>2</sub>. Reactivity of Hf with oxygen is much higher compared to that of Si with oxygen. Very stable HfSi<sub>2</sub> formation occurs after annealing at 800<sup>0</sup>C

**Keywords :** Photoelectron Spectroscopy, Synchrotron radiation, Oxide, Thin film, Annealing

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