

Analysis of multilayer structures on Silicon

This application shows the ability to analyse multilayer structures typically used in the manufacturing of semiconductor devices.

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The analysis has been achieved with a 4 mm diameter anode. The analytical parameters have been chosen in order to obtain a good depth resolution. The RF power was of 40 Watts, the Argon pressure in the discharge cavity of about 5 mbar. The sample is introduced with an autoloading system specially designed for the handling of 6 and 8 inch wafers.

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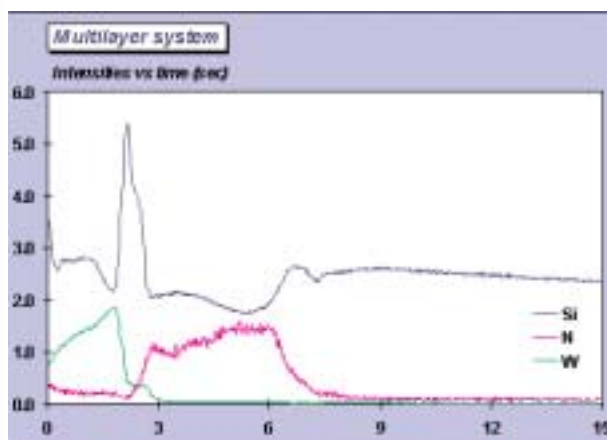
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Multilayer system

Three different films have been deposited on a silicon wafer:

A SiN film followed by a poly silicon film and a conducting Tungsten silicide film

This multilayer system is a typical example for structures used for the production of semiconductor chips.



Analytical result

The three different layers can be clearly distinguished. The intensity of the silicon is particularly interesting. The signal strength of silicon in the poly silicon (pure poly crystalline silicon) is much higher than in the silicon wafer (pure mono crystalline silicon). This phenomena can be explained by the variation of the sputtering rate.

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