

## **Cobalt tungsten phosphorous electroless deposition process and materials (Ramot)**

**code:** 11-2007-122

[Yosi Shacham- Diamand](#), T.A.U Tel Aviv University, Engineering, School of Electrical Engineering

### **The Technology**

The new technology of electroless cobalt has lower resistance and enhanced electromigration resistance compared to alternative barriers that are used today. Therefore, for submicron technology, the new technology yields better global interconnect delay, improved reliability and increased resistance to corrosion.

Furthermore, it is well conformed to the use since the deposition is a surface reaction which is limited due to the high diffusion of the species material in the liquid phase.

### **Potential Application and the Need**

In integrated circuit (IC) manufacturing, copper based interconnects technology faces several problems such as metal corrosion, weak adhesion, high chemical reactivity, copper surface electromigration, corrosion (mainly post CMP) and considerable transport of copper in common ILD materials. The application of thin barrier and capping layers for copper interconnects technology solves those problems: Typically, a barrier layer is connected in parallel to the interconnect line and occupies volume that would otherwise be used for signal conduction by the copper. Therefore, the barrier should be as thin as possible without affecting its integrity. Our technology is able to satisfy these conditions at a thickness of nanometers.

### **Patents**

Two granted US patents

### **Contact for more information:**

Noam Greenspoon ,

---

Ramot at Tel Aviv University Ltd. P.O. Box 39296, Tel Aviv 61392 ISRAEL

Phone: +972-3-6406608

Fax: +972-3-6406675