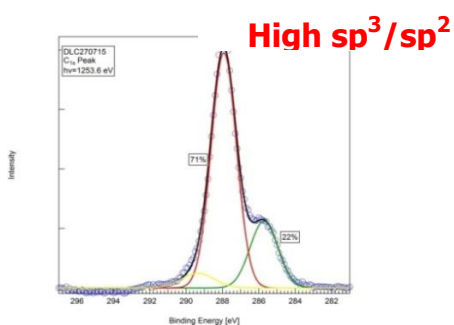


DLC Thin Films by PPD

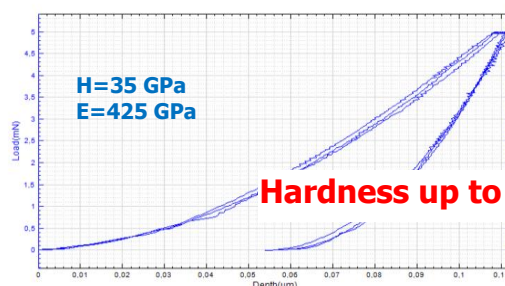


Organic Spintronics' (OS) Pulsed Plasma Deposition (PPD) proprietary technique deposits at a low cost **high quality DLC thin films** (high sp^3 bond percentage) with **high hardness** and **strong adhesion** to the substrate thanks to a buffer layer. The **latest outcome** have shown that for some metals and alloys **buffer layer is not required**.

DLC films are used for surface hardening and low friction applications. High performance thin films are very expensive since they have been produced so far only by Filtered Cathode Vacuum Arc (FCVA) and, therefore, could not be applied for massive production.



Using a restrained amount of energy, OS' Pulsed Plasma Deposition (PPD) deposits DLC thin films obtaining up to 71% of sp^3 bonds.



With such percentage, high hardness is easily reached: 35 GPa is the best value obtained for the hardness and 435 GPa is the medium value for the Elastic Modulus.

OS' DLC films strongly adhere to the substrate: scratch tests have shown a last delamination force of about 9 N. The strong adhesion is usually obtained using a buffer layer, but recent tests have demonstrated that OS' DLC films can adhere to some alloys without using any buffer layer.



High adhesiveness

Smoothness is another relevant characteristic for low friction applications: OS' DLC thin films can grow less rough than the substrate. Also the smoothness of the DLC film itself is very low and depending on the finishing of the substrate surface, it can reach a medium value of 4 nm.

