The IMPACT Project and Platform: "quasi insitu" analyses and multipurpose advanced characterizations for materials studies, merging academic research and industrial applications

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Abstract

The high complexity of the actual microelectronics chip's production chain leads to an increasing number of process steps.
In addition, due both to the extreme thinness and chemical nature of the large variety of materials actually processed, surface's exposure to air born molecular contamination (AMC) becomes a critical issue.
In parallel to this problematic of surface control between process steps, preserving the surface's physico-chemical state is also a key point for material's advanced characterization studies.
In this scope, the so called *quasi insitu* analyses, based on keeping high quality static vacuum inside a specific carrier [1] allow to keep surface integrity during transfer between tools. This is one of the key feature of our specific IMPACT characterization platform that we developed at lab these last years.

The overall idea of this innovative setup is to merge the benefits of this *quasi insitu* transfer concept with **advanced best in class characterization tool, from small samples to 300mm**
Thus, the applications of such a platform can be grouped around two axes, clearly linked together :

- For all processes dealing with materials sensitive to the atmosphere, the preservation of the vacuum chain between different process tools and characterization chambers allows a fine understanding and development of industrial processes [2,3,4,5].
- The advanced and upfront specifications of the characterization techniques implemented on the platform allows extensive academic studies [6,7,8].

After a short description of the project's concept and platform structure (see image below), the presentation will highlight a few key applications and results related to both axes above. A special focus will be done on the platform's interest for users within the RENATECH network.

Moreover, recent studies and improvements about transfer's performances with regards to AMC will be presented too.

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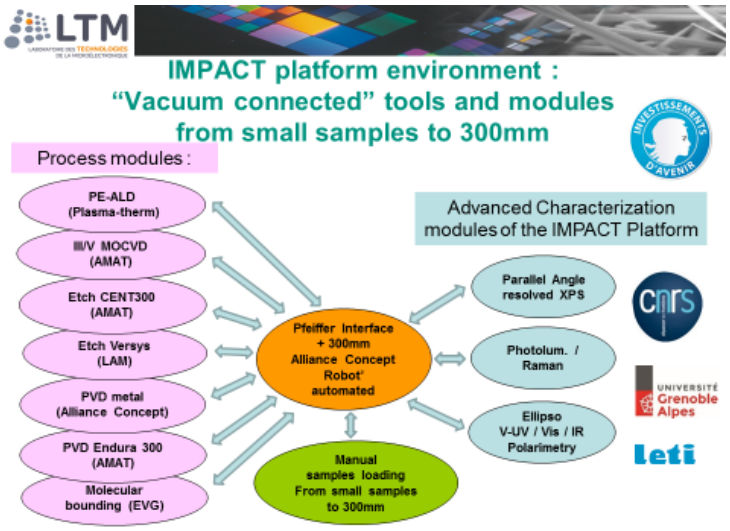

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