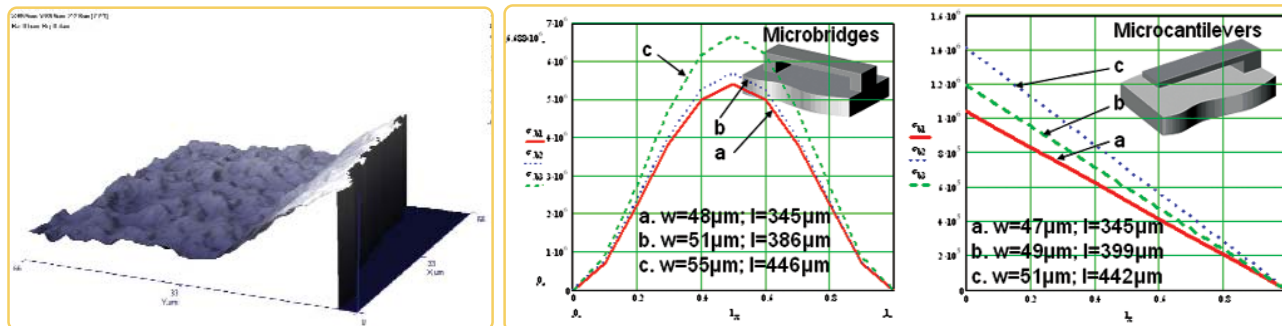


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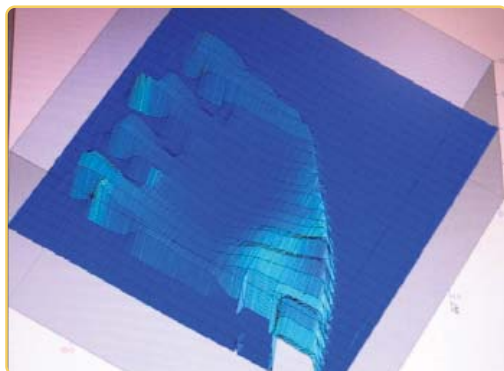
Moreover, **Profactor's ESR Luis Rubio** presented a new concept for handling of chips for self-assembly applications by implementing intelligent capabilities by means of adaptive control techniques on a vacuum gripper. The strategy consists on developing a control technique able to recognize on-line the current state of the pick and self-assembly placement process, and automatically adapt the control strategy, taking into account all forces which play a role in the process, such as capillary forces between the chip and the gripper and between the chip and the substrate.



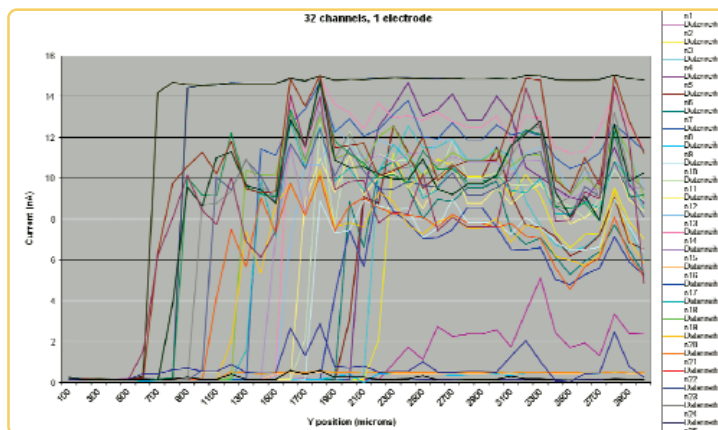
Deformation of a cantilever during experimental testing after nanoindentation, and variation bending stresses for different geometric dimensions (WUT)

A second part of this Workpackage concerns test and characterization of assembled Microsystems. An outstanding result of this task is the work on characterization of mechanical properties of MEMS with movable components done in WUT (theoretical and experimental tests on cantilever and bridge structures), as well as evaluation and comparative analysis of testing methods, such as SEM, STM, AFM and Nanoindentation by triboscope. WUT's work has led to the published book "Mechanical and Tribological Characterization of MEMS Structures" by **M. Pustan** (since the end of his appointment back in TU Cluj-Napoca) and **Prof. Z. Rymuza**.

Other contributions to this task are among others, the studies on the effect of baking conditions on the stress of SU8 cantilevers (**ER Sotiria Psoma**), fabrication of bimorph cantilevers and bridges to be mechanically tested by WUT (**ESR Samuel Serra** and **ESR Gergely Perlaky**),



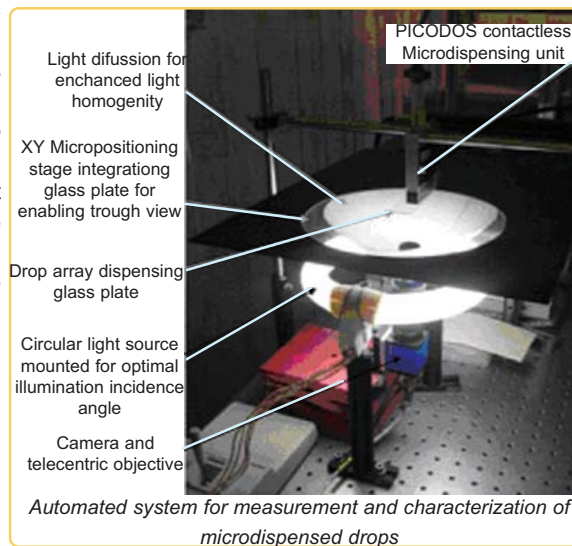
Performance assessment of position sensitive device



The contribution of **Uninova** to the task of **Test and Characterization** was focused on system performance assessment. Two software applications were developed by **ESR Javier Contreras** from **Uninova**, with the help of **ER Marek Idzikowski** in Oldenburg (a 3D simulation platform able to represent 3D profiles of objects scanned by Uninova's 3D sensor in real time, as well as a 3D simulation software application for tracking the movement of micro objects within the detecting area of the 3D sensor itself).

**ESR Silvia Bou** with support of **ESR Zbyszek Rozynek** at **Profactor (former ARC)** did considerable progress and finalized the development of an automated system for measurement and characterization of microdispensed drops by means of image processing.

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