



ÉCOLE POLYTECHNIQUE
FÉDÉRALE DE LAUSANNE

Nanoscale strain analysis by TEM for reduction of power consumption in 180nm CMOS low power embedded flash technology

A postdoc position is open at the Interdisciplinary Centre for Electron Microscopy (CIME), EPFL to conduct quantitative strain analysis in low power consumption integrated circuits using TEM. The postdoc will collaborate with EM Microelectronic SA in order to study stress being created in trench isolated Si transistors as device scales are reduced in embedded flash technology.

A PhD qualified applicant is required who has high competencies in TEM, in particular electron holography and/or quantitative nanobeam and convergent beam electron diffraction. The postdoc will exploit these techniques to determine strain/stress distributions on the nanometer scale in the silicon transistors, in order to identify and quantify stress concentrations which are currently limiting device performance and hence market potential. Most analytical work in this project will be conducted on a JEOL 2200FS with in column energy filter. There will be close cooperation and regular contact with the industrial partner, who is committed to making dedicated test structures with different stress scenarios in an industrial fabrication plant, and to joint analysis of results.

The successful applicant will enjoy a competitive salary and stimulating environment, and can look forward to working in a microscopy centre that is currently benefiting from an influx of new instruments, joining a dynamic team led by Prof. Cécile Hébert. As well as the JEOL 2200FS, other instruments available in the CIME facility include a Zeiss NVision FIB/SEM, FEI Osiris with super-X fast EDX, FEI 300 kV HR TEM, and Zeiss Merlin HR SEM. There is excellent specimen preparation support with both the FIB, and classical techniques including a low-kV Gatan PIPS and a Multiprep.

The CTI research contract has a 12-month duration, starting at the beginning of March 2012. For further information, or to submit a cover letter and CV, please contact:

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