Post Doc job proposal

In the Optronics Department on the French Atomic Energy Commission laboratory: (CEA/LETI/DOPT/SIONA) research programs on recording technologies cover several area from next generation of DVD (BluRay format) to advanced Ultra High Density recording by micro probes. The Ultra High Density recording technique consists in writing/reading data in a media at nanometer scale - using micro tips similar to the ones used in Atomic Force Microscopy.

The Postdoctoral candidate will specifically address this later topic that can bring alternative solutions for very compact memories for nomadic systems (PDAs, telephones...), and for massive memories for archiving applications.

IBM develops since many years, the "Millipede" concept which uses the parallel operation of a great number of tips assembled in a microsystem (MEMS). Different UHD recording techniques are explored all over the world, mainly based on electric effects such as ferroelectricity or charge storage or on thermal effects related to indentation.

At Leti, we have studied for several years an electrical approach derived from Tunnel Microscopy and that might allows ultimate resolutions...

We expect to address some challenging issues in Ultra High Density recording technique using nanotubes (namely CNT) or nanowires. The candidate will specifically study the benefits of such nano objects in electrical mode probe recording.

Work will focus on:
· the explanation of the physical phenomena with such nanostructures
· the design of a tip/media demo
· the implementation of technological processes existing at the CEA-LETI for tests
· the characterization of expected effects by means of an atomic force microscope.

The candidate must have skills and knowledges in physics and chemistry and should have experiences in atomic force microscopy. Knowledge of carbon nanotubes and/or nanowires is required.

This work will be funded in the frame of the “Chimtronique” CEA program (Chemistry for future nanoelectronics).

Salary will be between 2000€ and 2500€ depending on experience; the position is for one year (renewable).

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