

**ABSTRACT**

**REFERENCES (26)**

J. Dejeu,<sup>1</sup> P. Rougeot,<sup>1</sup> M. Gauthier,<sup>1</sup> and W. Boireau<sup>1</sup>

<sup>1</sup>FEMTO-ST Institute, UMR CNRS 6174-UFC/ENSMM/UTBM, Besançon, France

The adhesion and interaction properties of functionalised surfaces (substrate or cantilever) were investigated by means of atomic force microscope (AFM)-related force measurements. The surfaces were functionalised with a polyelectrolyte – poly(allylamine hydrochloride) (PAH) – or with silanes – 3-(ethoxydimethylsilyl) propyl amine (APTES) or (3-aminopropyl) triethoxysilane (APDMES). Measurements of forces acting between a bare glass sphere (functionalised or not) and a functionalised surface indicated repulsive or attractive forces, depending on functionalisation and medium (wet or dry). Adhesion forces (pull-off) can be observed in dry medium, whereas in wet medium this phenomenon can be cancelled. Now, the pull-off forces represent an important problem in the automation of micro-object manipulations. The cancellation of this force by chemical functionalisation is thus a promising way of improving micro-assembly in the future.