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【専門】 界面化学

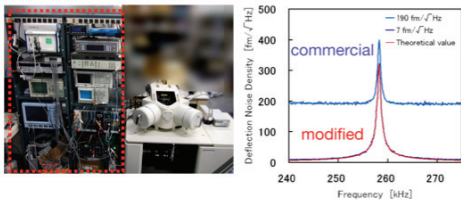
【キーワード】 走査プローブ顕微鏡、光学分光、光触媒

【計画研究課題名】 走査プローブ顕微鏡を用いた分子系高次機能の研究

〈研究グループアクティビティ〉

An FM-AFM for low-Q operations

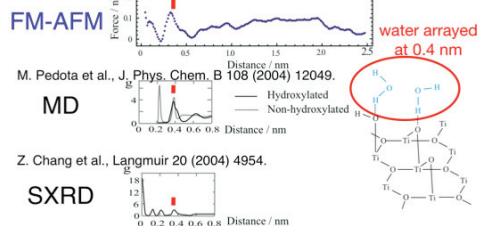
10^4 in vacuum, 300 in air, 3 in water



A low-noise cantilever deflection sensor has been developed in the collaboration with Shimadzu Co. and Kyoto Univ.

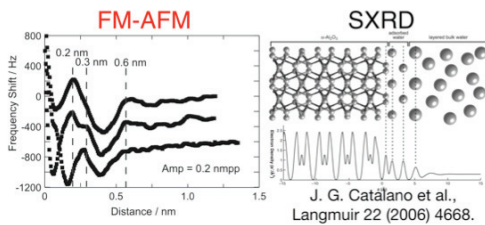
Water arrayed on TiO₂(110)

Hiasa et al., Jpn. J. Appl. Phys. 48 (2009) 08JB19.



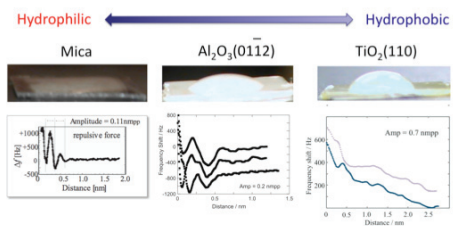
The force-distance curves agreed with the occupation probabilities of water simulated by MD and determined by surface x-ray diffraction.

α -Al₂O₃(012) in 1 M KCl solution



The force-distance curves agreed with the occupation probability of water determined by surface x-ray diffraction.

Solvent structure over different oxides



The macroscopic hydrophilic property of the three oxides was in an order of (more hydrophilic) mica, Al₂O₃ and TiO₂ (less hydrophilic). The microscopic water structures are related to the hydrophilic property of each oxide.