

## Supporting information

To exclude the possibility of heating effect of 20 min UV irradiation on the drift of the piezo, other azobenzene derivative without 2-position hydroxyl group has been used for comparison.

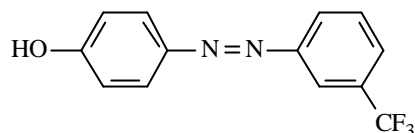


Figure 1. Molecule structure of 4-hydroxy-3'-trifluoromethyl-azobenzene.

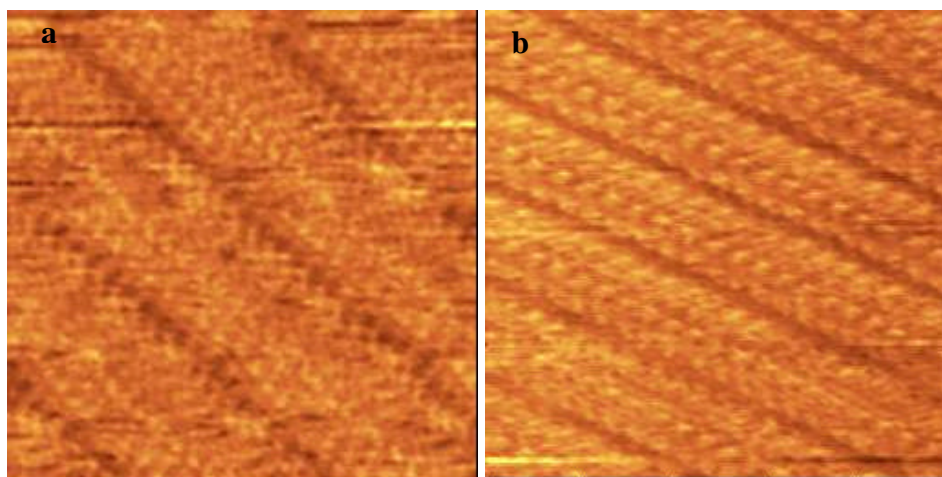


Figure 2. STM images of the molecules (a) before and (b) after UV light irradiation. The image size is  $10 \times 10 \text{ nm}^2$ . It shows that this derivative also can form ordered row-like structure and go *cis-trans* isomerization at liquid/graphite interface. However, no *cis-trans* driven reversible motion of the rows could be observed after UV irradiation.