

## PICK-AND-PLACE MANIPULATION OF ZNO NANOWIRES

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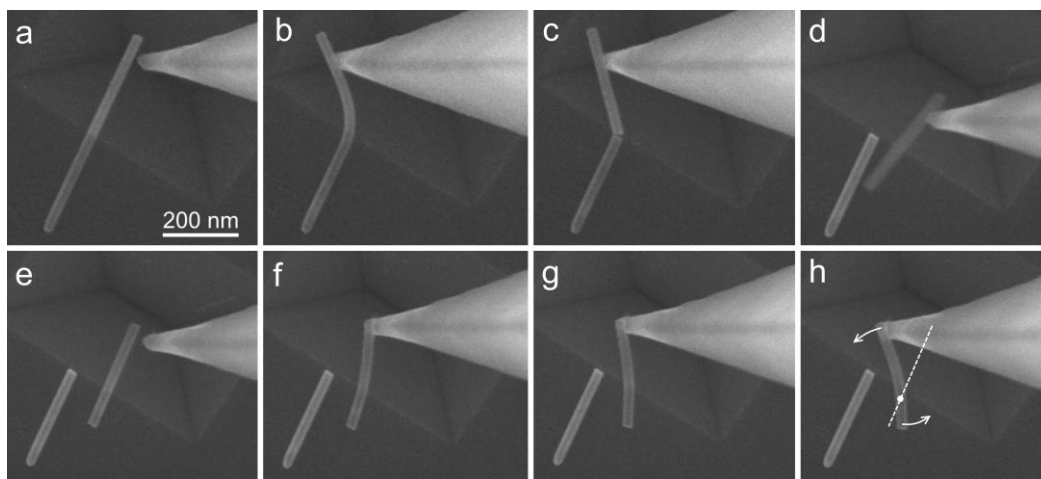
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ZnO nanowires (NW) are attractive objects for performing tribology experiments. Their hexagonal cross-section and well defined facets [1] enable us to easily approximate contact areas during experiments while the elastic properties [2] of the NWs makes it possible to measure friction forces from their profile without using an external force sensor. In these experiments NWs were manipulated into a suitable location using the “pick and place” approach. Static and kinetic friction was measured. Median value of the maximal interfacial shear strength of the contact calculated in 16 bending tests was found to be  $1.3 \pm 0.7$  GPa. The friction force values for kinetic friction measurements were highly scattered being mostly below 15 MPa.



*Figure 1. Typical manipulation of half-suspended ZnO NW inside HRSEM: (a-c) bending and breaking of the NW, (d-e) pick-and-place manipulation, (f-g) static friction measurements, (g-h) bent NW is rotating.*

### References

1. J. Cui, Mater. Charact. 64, 43 (2012)
2. L. M. Dorogin, Phys. Status Solidi (b) 250, 35 (2013)



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