

Single-Molecular Protein-based Bioelectronics via Electronic Transport: Fundamental, Devices and Applications

Tao Jiang ^{a,#}, Biao-Feng Zeng ^{a,#}, Bintian Zhang ^{b*} and Longhua Tang ^{a,c*}

^a State Key Laboratory of Modern Optical Instrumentation, College of Optical Science and Engineering, Zhejiang University, Hangzhou 310027, China

^b Shenzhen Key Laboratory of Precision Measurement and Early Warning Technology for Urban Environmental Health Risks, School of Environmental Science and Engineering, Southern University of Science and Technology, Shenzhen 518055, China

^c Institute of Quantum Sensing, Interdisciplinary Centre for Quantum Information, Zhejiang University, Hangzhou 310027, China

* Corresponding authors: zhangbintian@sustech.edu.cn (B.Z.);
lhtang@zju.edu.cn (L.T.)

These authors contributed equally.

Schematics of protein junctions fabricated by different methods

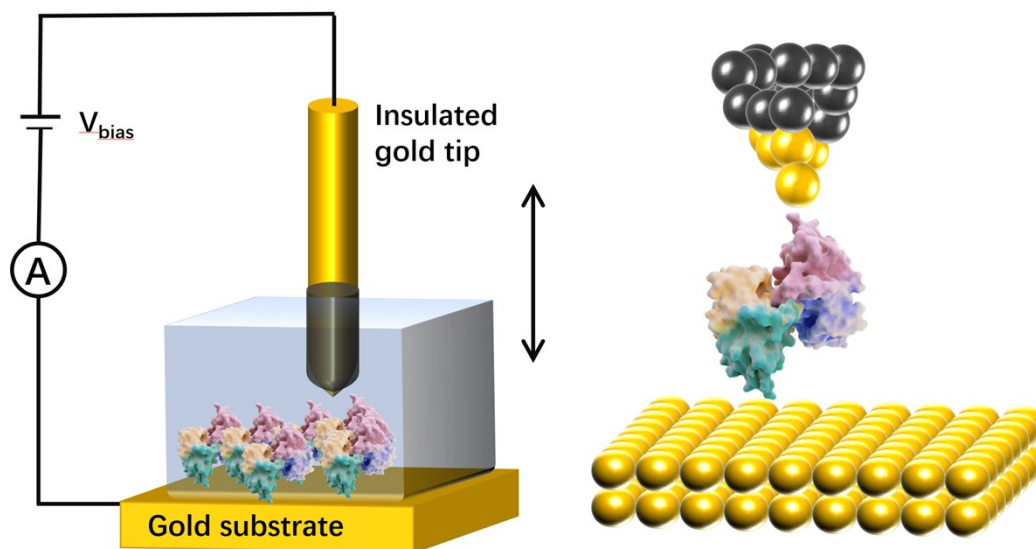


Figure S1 Scanning tunnelling microscopy break junction.

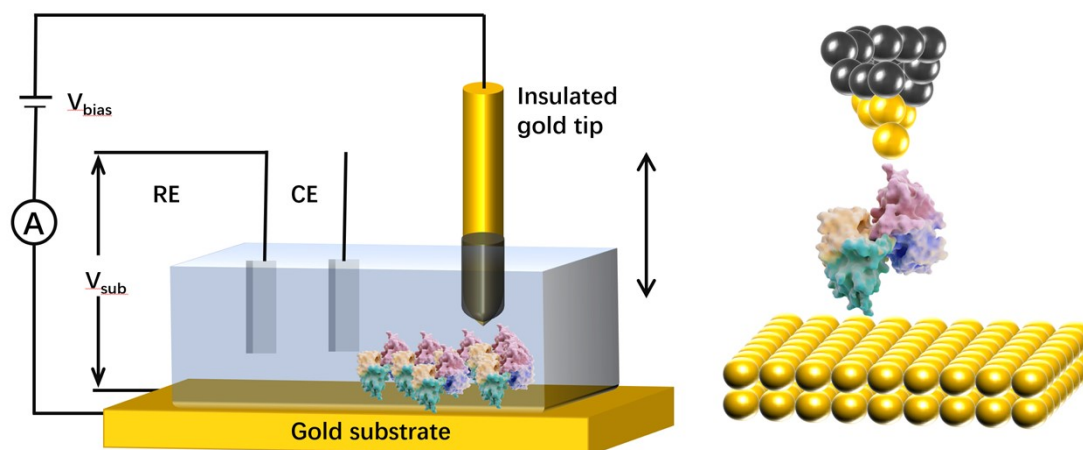


Figure S2 Electrochemical scanning tunnelling microscopy.

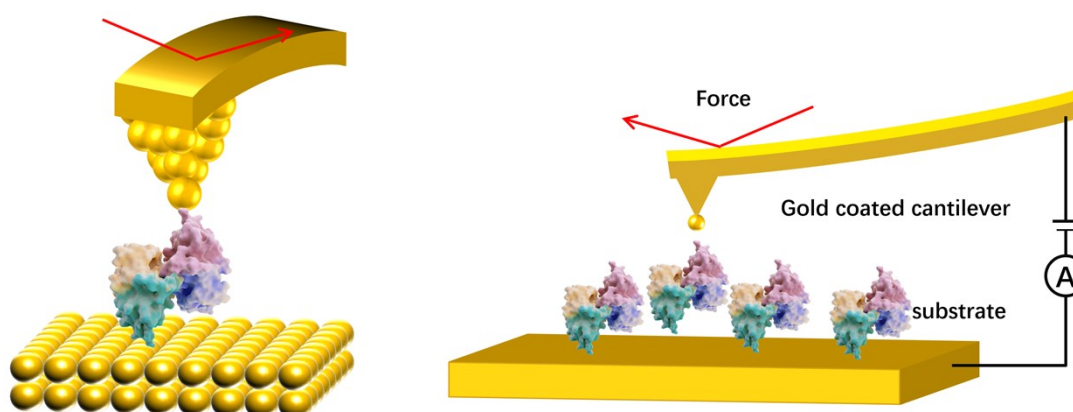


Figure S3 Conducting probe atomic force microscopy break junction.

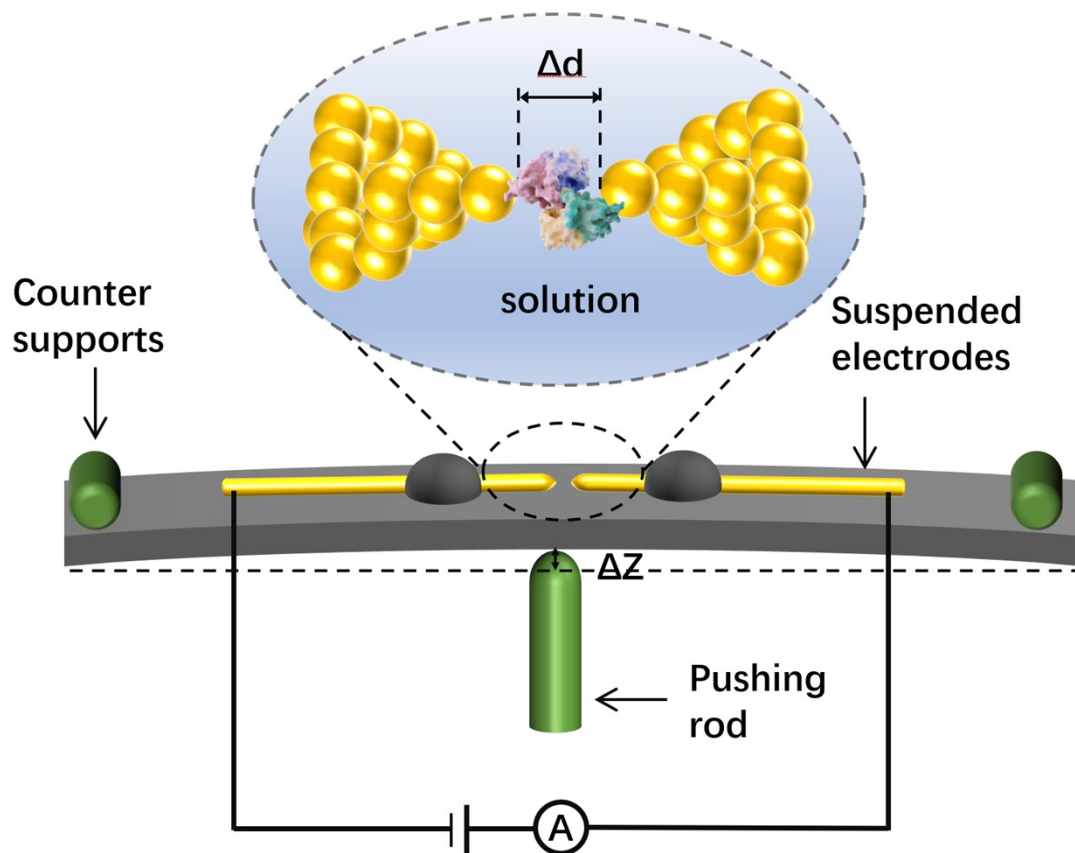


Figure S4 Mechanically controlled break junctions.

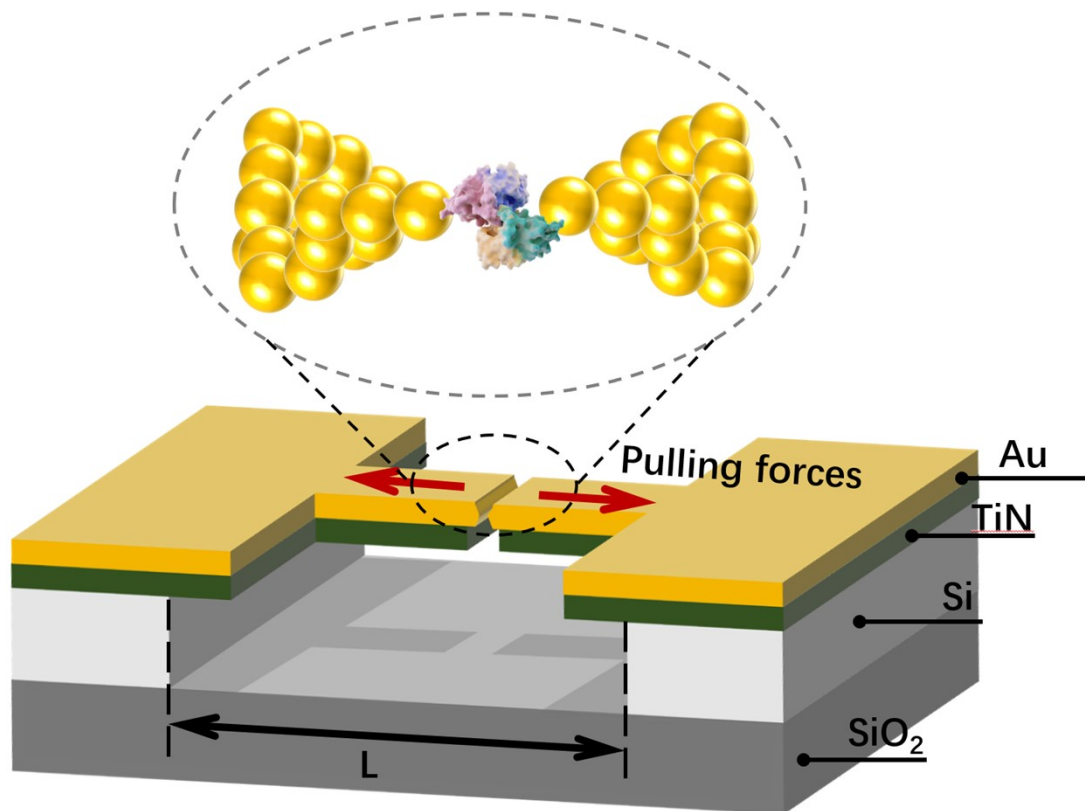


Figure S5 Crack-defined break junction.

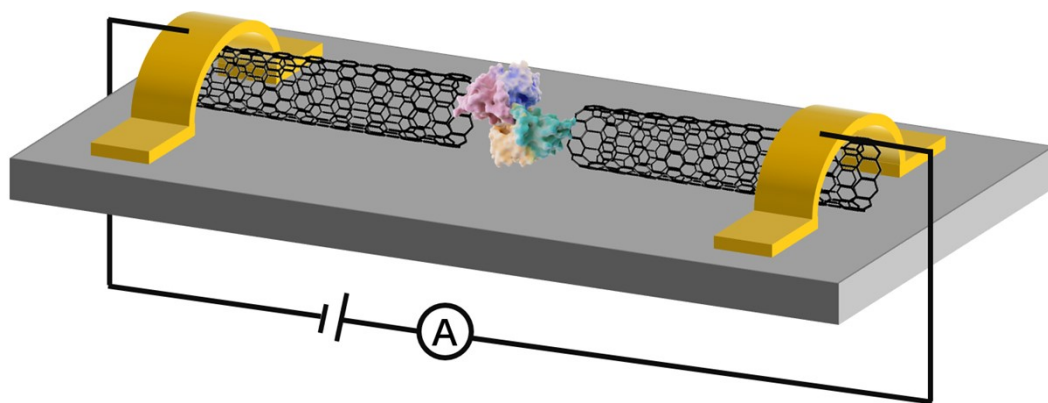


Figure S6 Lithography-defined cutting protein junction based on single-walled carbon nanotubes.

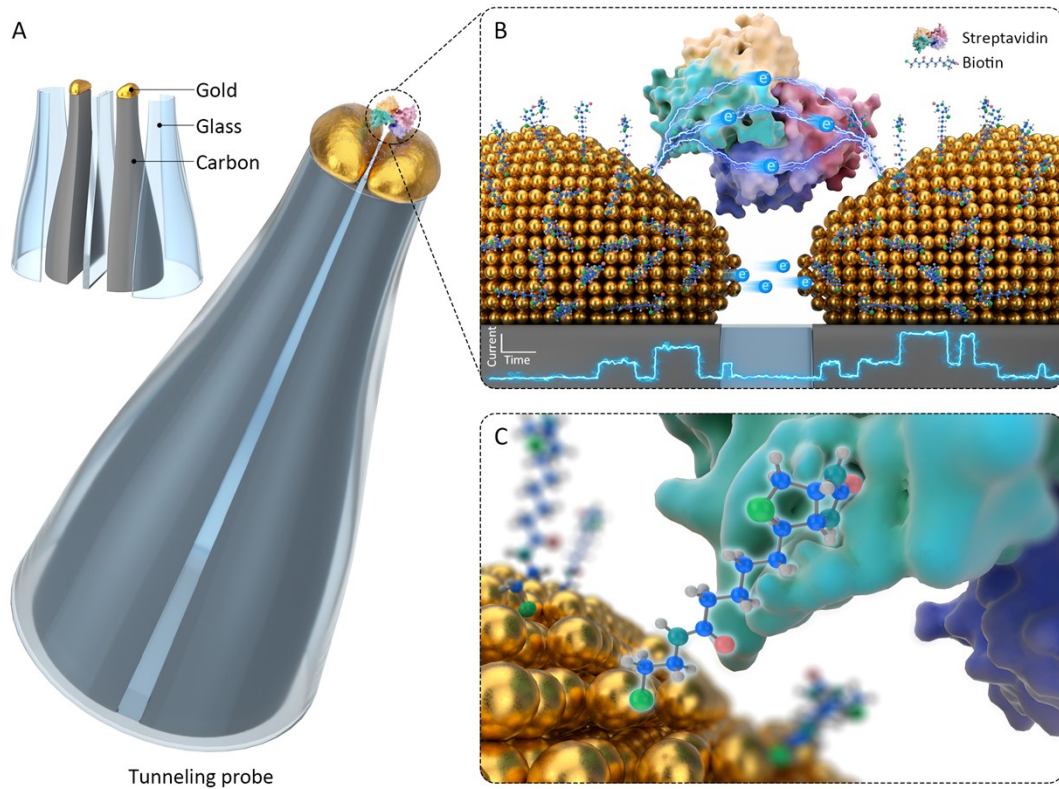


Figure S7 Protein junction based on electrochemical deposition.

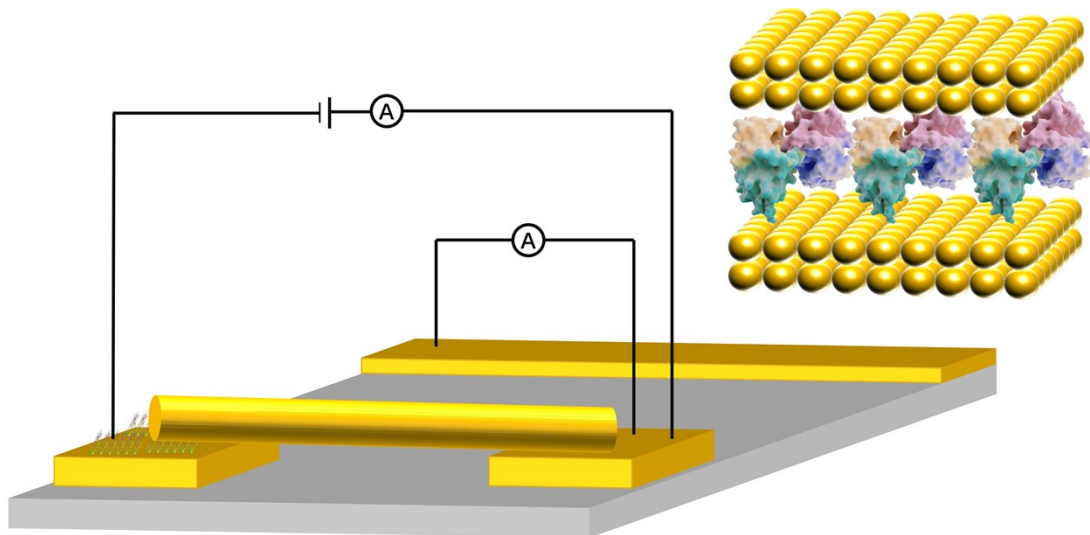


Figure S8 Nanowire cross-protein junction.

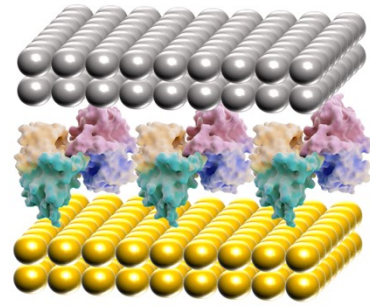
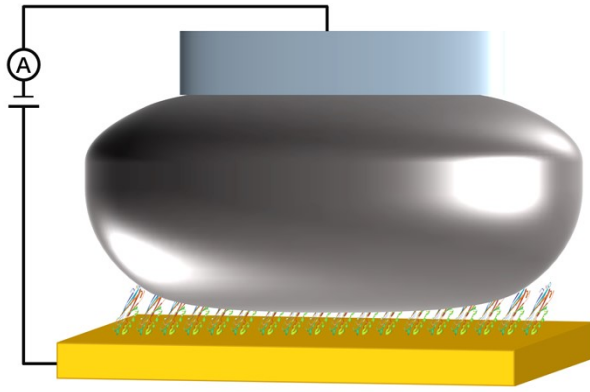


Figure S9 Liquid metal contact junctions.

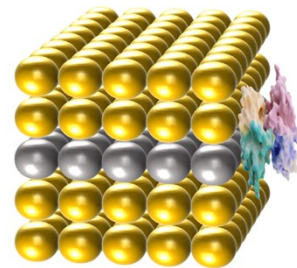
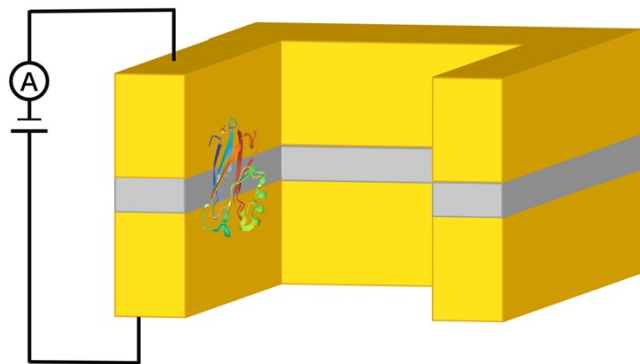


Figure S10 Stacking junction.