Supplementary Information (SI) for Nanoscale.
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Supporting Information

Enhanced Frictional Anisotropy and Wear Resistance via Bioinspired Hybrid Graphene Oxide - Titania Nanopatterned Surfaces

Debottam Datta,[1] Enrico Gnecco,[2,] J. P. Singh,[3,*] Nitya Nand Gosvami [4,*]*

[1] School of Interdisciplinary Research, Indian Institute of Technology Delhi, Hauz Khas, New Delhi, 110016, India

[2] Marian Smoluchowski Institute of Physics, Jagiellonian University, 30348 Kraków, Poland

[3] Department of Physics, Indian Institute of Technology Delhi, Hauz Khas, New Delhi, 110016, India

[4] Department of Material Science and Engineering, Indian Institute of Technology Delhi, Hauz Khas, New Delhi, 110016, India

[*] Corresponding Author(s): enrico.gnecco@uj.edu.pl (Enrico Gnecco),

jpsingh@physics.iitd.ac.in (J. P. Singh),

ngosvami@mse.iitd.ac.in (Nitya Nand Gosvami)

1. Characterization of the Bare and Hybrid Nanopatterned Surface

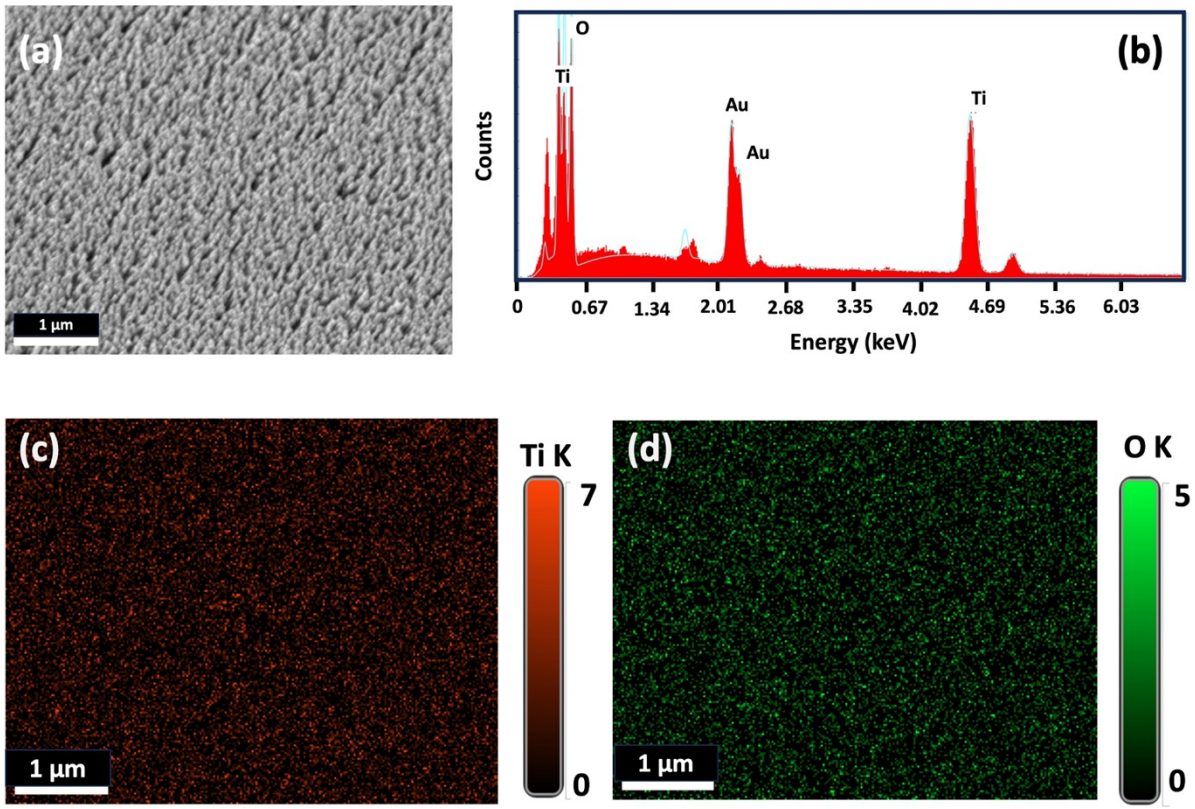

Figure S1. The **(a)** FESEM Image and **(b)** EDAX analysis of the bare titania nanopatterned surface; The EDAX mapping of **(c)** titanium and **(d)** oxygen on the bare titania nanopatterned surface.

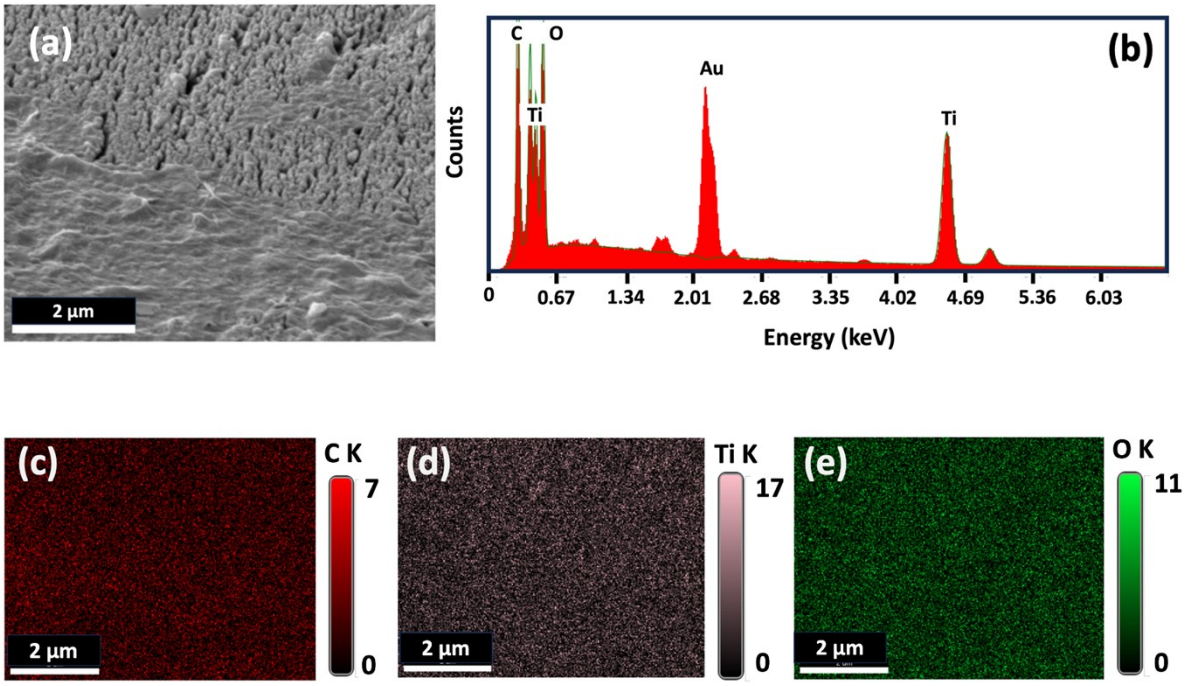

Figure S2. The **(a)** FESEM Image and **(b)** EDAX analysis of the hybrid surface; The EDAX mapping of **(c)** carbon, **(d)** titanium and **(e)** oxygen on the hybrid surface.

2. Frictional Properties of Hybrid and Bare Nanopatterned Surface

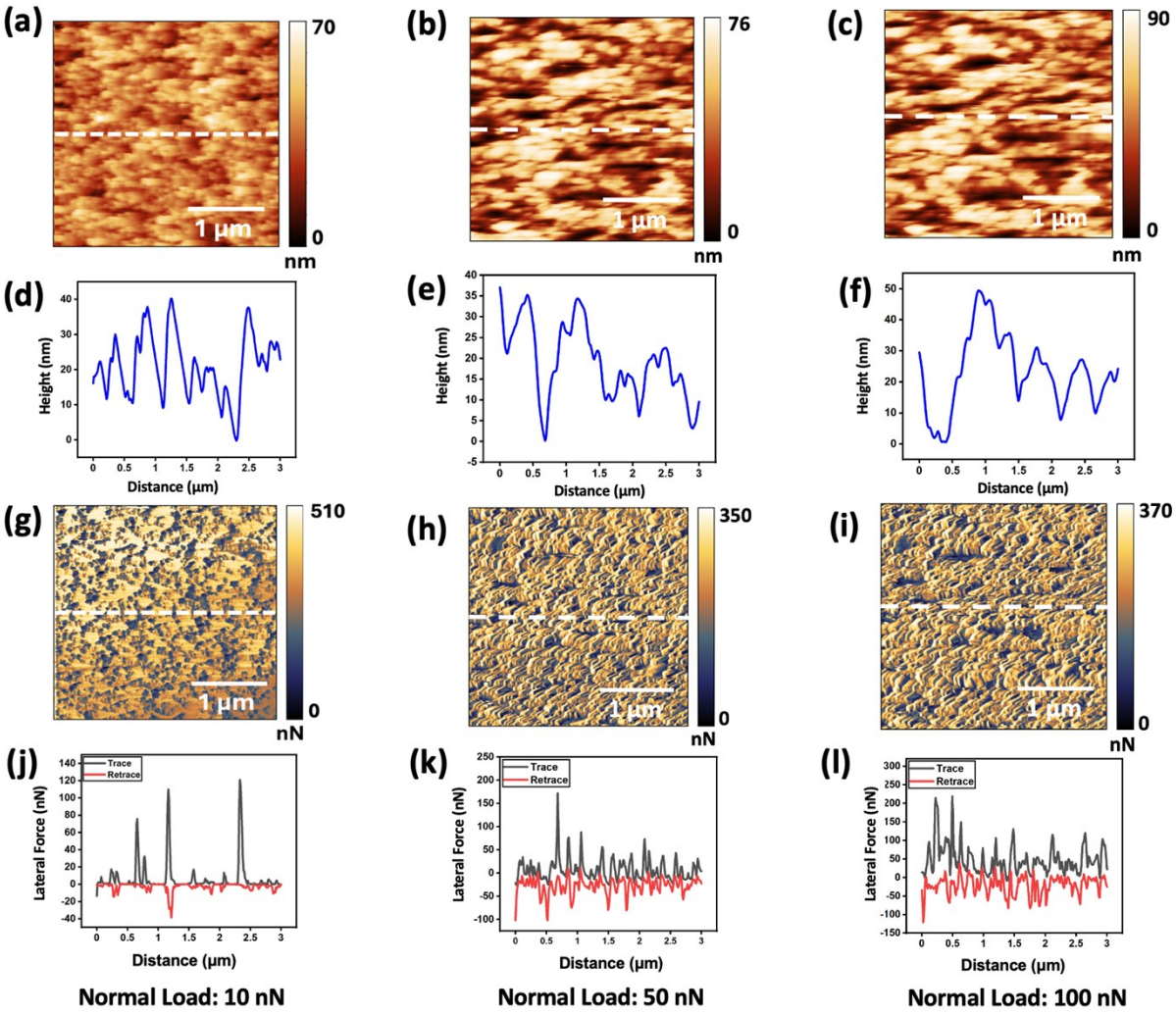

Figure S3. The evolution of the bare titania nanopatterned surface at the PT configuration with increasing normal loads. The change of surface topography at the normal load of **(a)** 10 nN, **(b)** 50 nN and, **(c)** 100 nN, respectively; the profile of the white dotted lines drawn on **(d)** Figure a, **(e)** Figure b, and **(f)** Figure c, respectively. The forward lateral force maps captured during the trace movement of cantilever at the normal load of **(g)** 10 nN, **(h)** 50 nN and, **(i)** 100 nN, respectively; the friction loops of the corresponding white dotted line drawn on **(j)** Figure g, **(k)** Figure h, **(l)** Figure i, respectively.

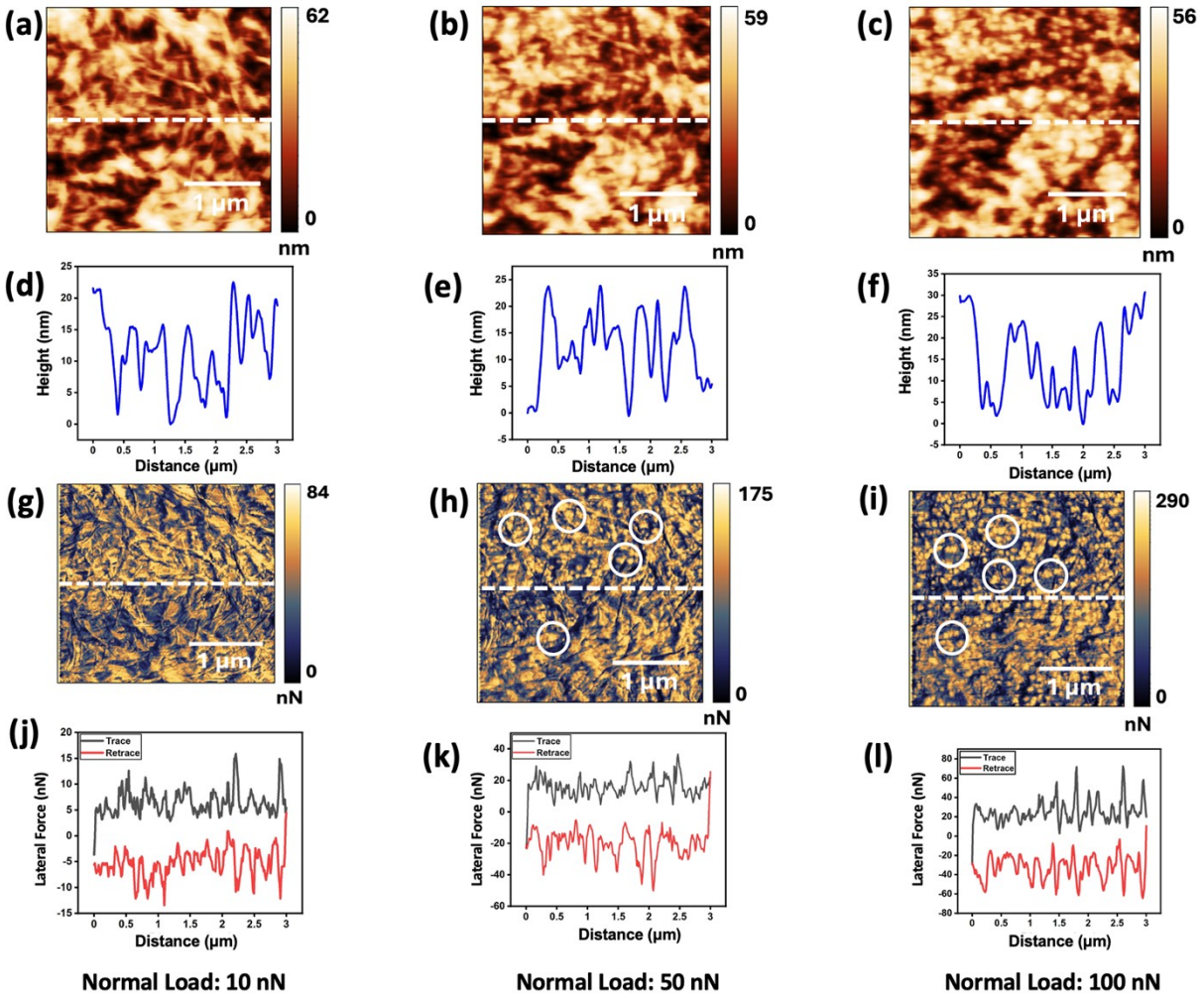

Figure S4. The evolution of the hybrid surface at the PT configuration with increasing normal loads. The change of surface topography at the normal load of **(a)** 10 nN, **(b)** 50 nN and, **(c)** 100 nN, respectively; the profile of the white dotted lines drawn on **(d)** Figure a, **(e)** Figure b, and **(f)** Figure c, respectively. The forward lateral force maps captured during the trace movement of cantilever at the normal load of **(g)** 10 nN, **(h)** 50 nN and, **(i)** 100 nN, respectively; the Friction loops of the corresponding white dotted line drawn on **(j)** Figure g, **(k)** Figure h, **(l)** Figure i, respectively.