## Effectively Modulating Vertical Tunneling Transport by Mechanically Twisting Bilayer Graphene within All-metallic Architecture

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**Fig. S1.** The transmission spectra at high symmetry point K for each interlayer twist angle.



**Fig. S2.** The transmission spectra at high symmetry point Gamma for each interlayer twist angle.



**Fig. S3.** The transmission spectra at high symmetry point M for each interlayer twist angle.



**Fig. S4.** The electronic band structure of AB-stacking bilayer graphene and its corresponding transmission spectra (purple line) at high symmetry point (Gamma, K and M) which is shifted to match the eigenvalue in the electronic band structure, respectively. The amplitude of transmission probabilities is adjusted to a uniform scale to facilitate comparison.



**Fig. S5.** The projected density of states on XY plane in the middle position between bilayer graphene at Fermi energy level (E=0 eV) for 0° interlayer twist angle.



**Fig. S6.** The projected density of states on XY plane in the middle position between bilayer graphene at Fermi energy level (E=0 eV) for 6° interlayer twist angle.



**Fig. S7.** The projected density of states on XY plane in the middle position between bilayer graphene at Fermi energy level (E=0 eV) for 7.3° interlayer twist angle.



**Fig. S8.** The projected density of states on XY plane in the middle position between bilayer graphene at Fermi energy level (E=0 eV) for 9.4° interlayer twist angle.



**Fig. S9.** The projected density of states on XY plane in the middle position between bilayer graphene at Fermi energy level (E=0 eV) for 13.2° interlayer twist angle.



**Fig. S10.** The projected density of states on XY plane in the middle position between bilayer graphene at Fermi energy level (E=0 eV) for 21.8° interlayer twist angle.