

Supplementary Materials

# **Nitrogen-Doped Diamond-Like Carbon Buffer Layer Enhances the Mechanical and Tribological Properties of Diamond-Like Carbon Films Deposited on Nitrile Rubber Substrate**

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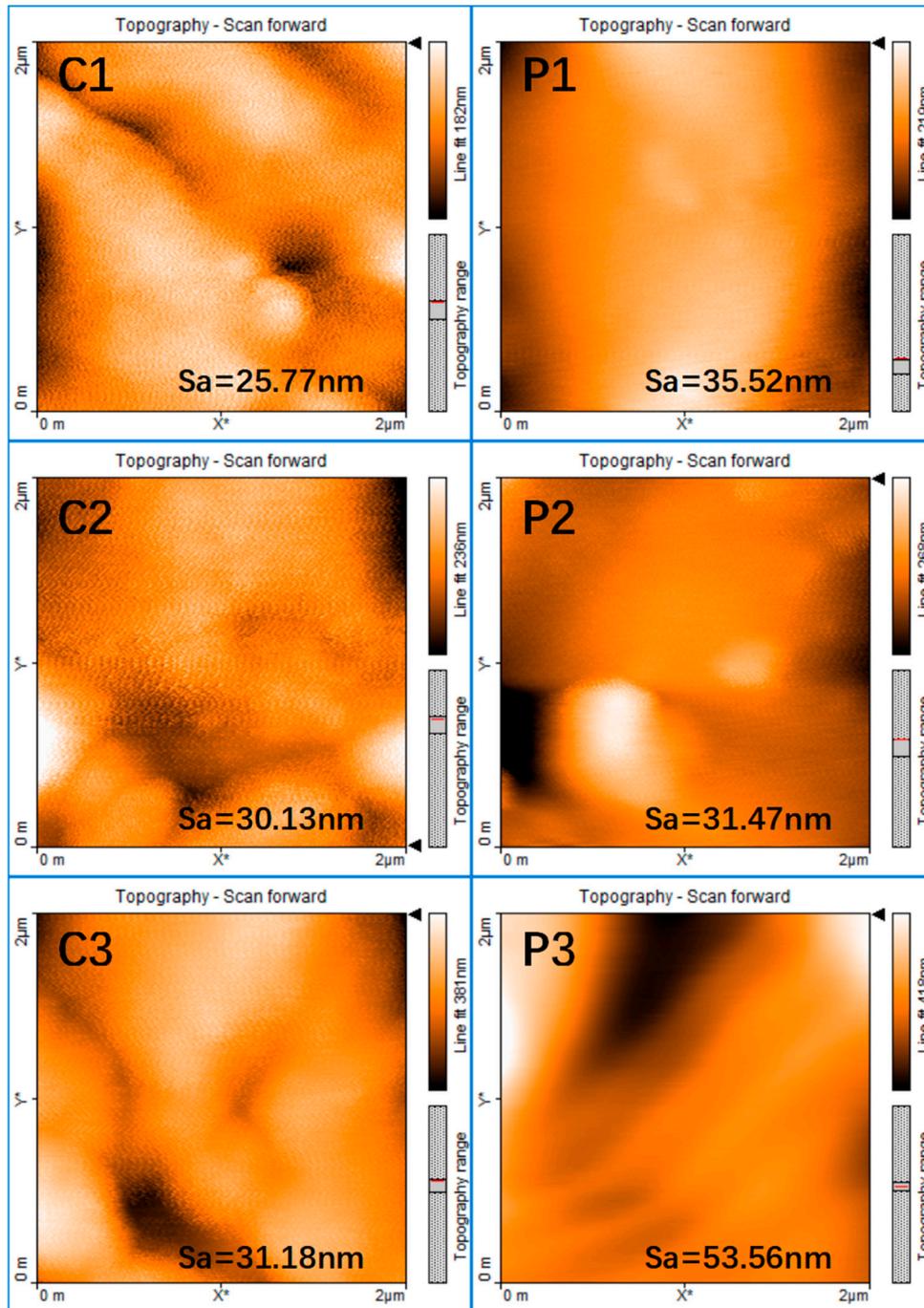


Figure S1: AFM image of the final DLC film with that of both the substrate and N-DLC buffer layer.

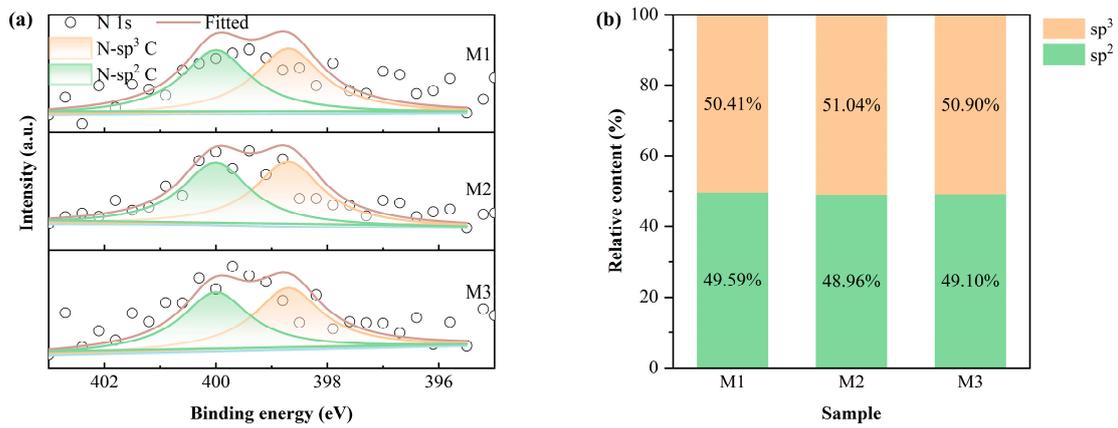


Figure S2: (a) XPS N1s spectra of interlayer film deposited on NBR at different bias voltages; (b) corresponding sp<sup>2</sup> and sp<sup>3</sup> percentages of sp<sup>2</sup>N-C/sp<sup>3</sup>N-C

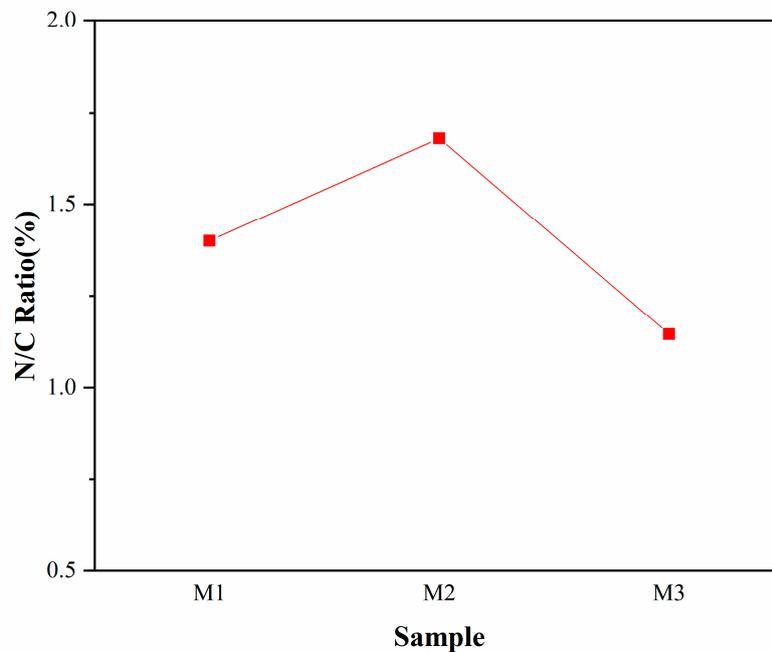


Figure S3: N/C percentage of interlayer films deposited on NBR under different bias voltages.

The N1s spectra of the interlayer films exhibit two characteristic peaks with binding energies of  $398.7 \pm 0.1$  eV and  $399.9 \pm 0.2$  eV, respectively, which are corresponding to sp<sup>3</sup>N-C and sp<sup>2</sup>N-C bond, as depicted in Figure S2. The N/C percentage of interlayer film deposited on NBR at different bias voltages is shown in Figure S3. It can be seen the N content is very low in the N-DLC interlayer.