

# Supplementary Data

## **Atomic-scale Understanding on the Tribological Behavior of Amorphous Carbon Films under Different Contact Pressures and Surface Textured Shapes**

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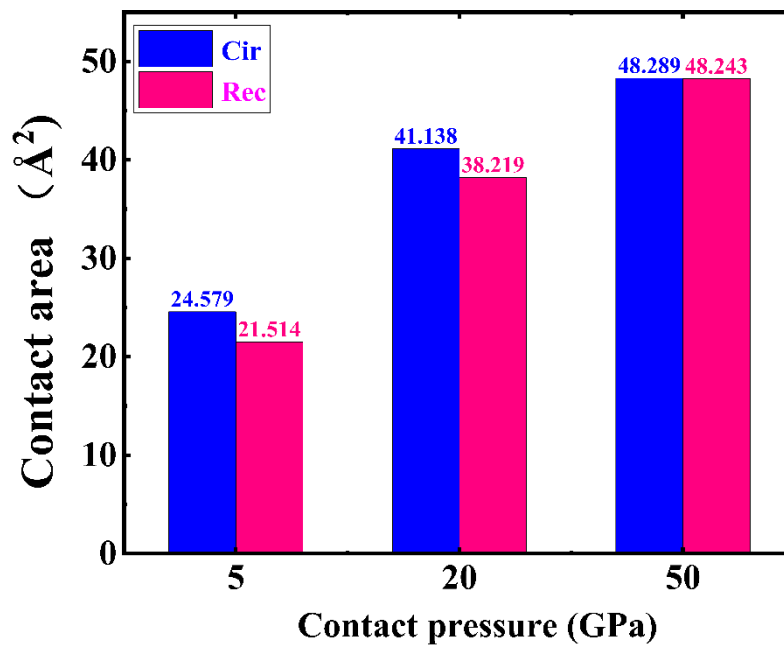
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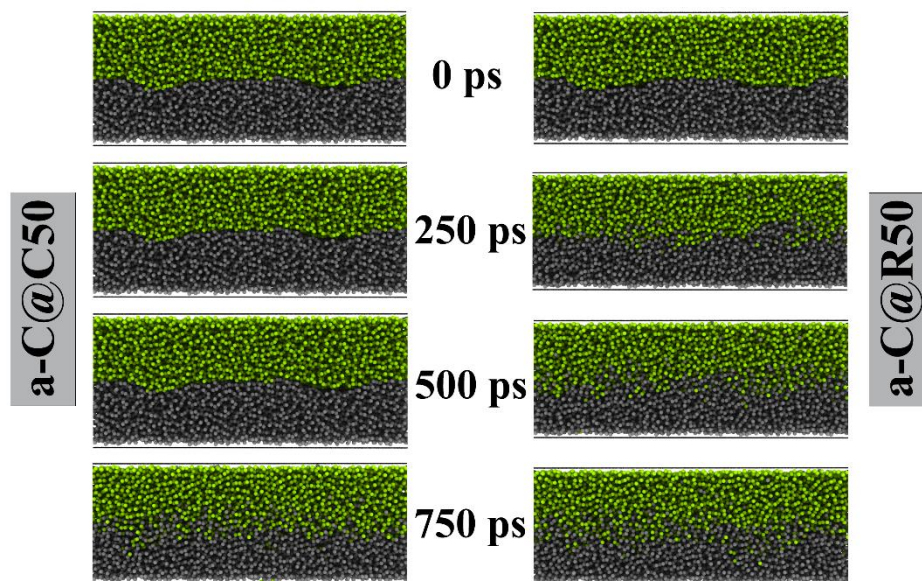
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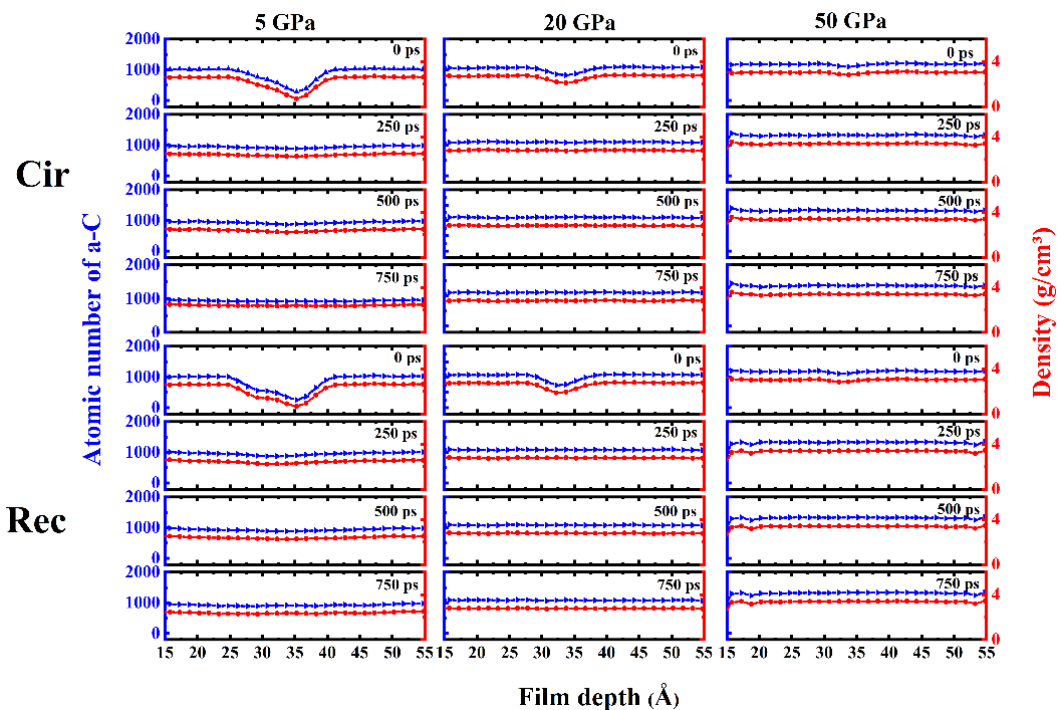
E-mail address: krlee@kist.re.kr (K.R. Lee)



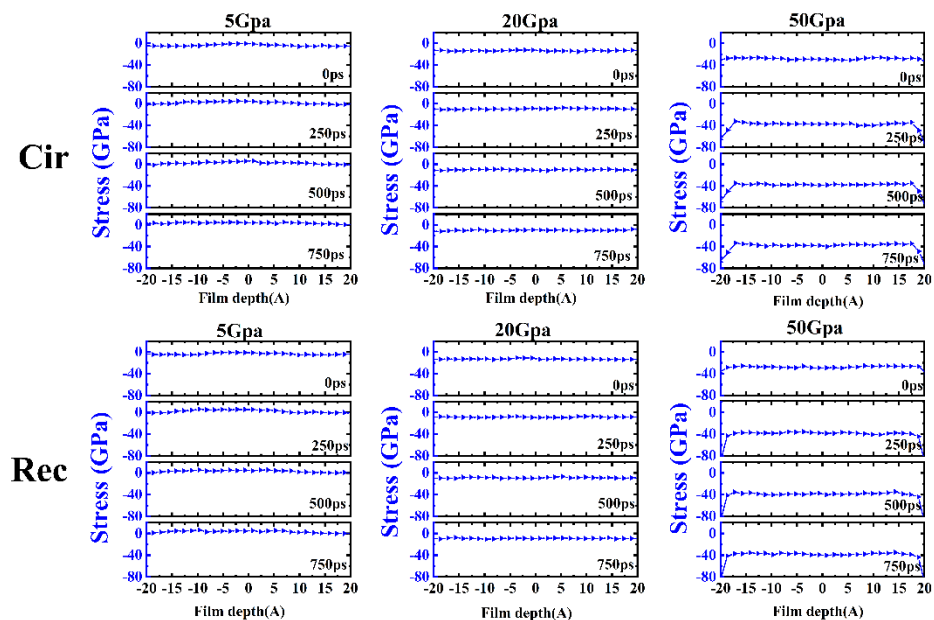
**Figure S1.** Contact area of friction systems with circle- and rectangle-textured shapes, respectively, under different contact pressures.



**Figure S2.** Evolutions of interfacial morphologies of a-C@C50 and a-C@R50 systems, respectively, under the contact pressure of 50 GPa.

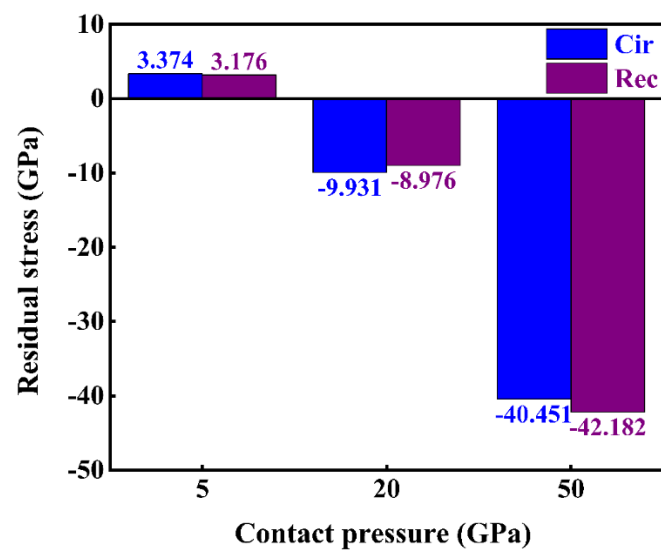


**Figure S3.** Atomic number and density distributions of friction systems with circle- and rectangle-textured shapes, respectively, under different contact pressures.



**Figure S4.** Stress distributions of friction systems with circle- and rectangle-textured

shapes, respectively, under different contact pressures.



**Figure S5.** Residual stress of friction systems with circle- and rectangle-textured shapes, respectively, under different contact pressures.