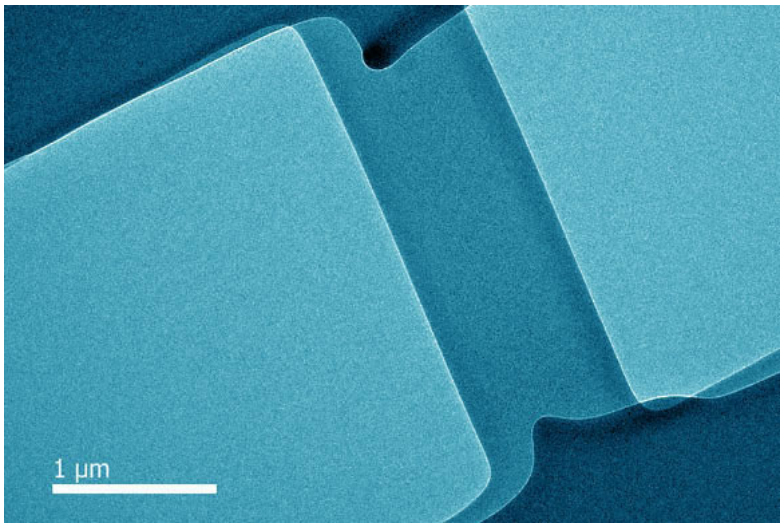
Successfully fabricated flexible glass, which can only be bent, not broken

This new glass material achieves a ductility similar to that of metal at room temperature.

Researcher Erkka Frankberg and colleagues at the University of Tampere Finland have recently developed a new glass material that reaches a plastic-like ductility at room temperature. This means the new flexible glass can bend like an aluminum bar, not break like regular glass.

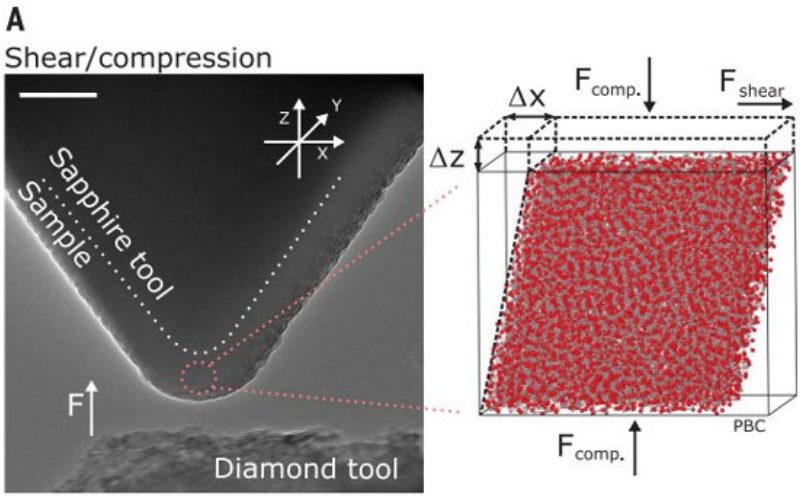
Conventional glass manufacturing processes easily convert aluminum oxide into crystal form. So, in order to convert alumina (Al2O3) material to a glass-like state, preventing crystallization from happening, the researchers used a very difficult technique called laser pulse deposition. This solution aims to cool materials extremely quickly from high temperatures.



The newly created plastic glass can only be bent, not broken.

If you do not know, creating glass with ductility is extremely difficult because the glass created also needs to be pure and perfect. If there are any defects (cracks, impurities or bubbles) can cause glass to break.

According to Dr. Frankberg, ordinary glass is easy to break because under pressure they will break before the atoms begin to move. With flexible glass it is different, its atoms can move from one position to another before it is crushed so hard that it breaks.



The team used a thin glass film, stretching and compressing it under mechanical stress. The results show that this glass membrane is as flexible as metal.

Dr. Frankberg and his colleagues are continuing research and testing to be able to deploy it on an industrial scale, mass production and reduce the cost of flexible glass.

New research on flexible glass is published in Science.

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