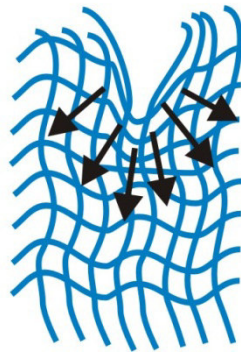
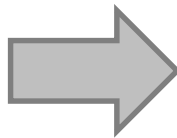




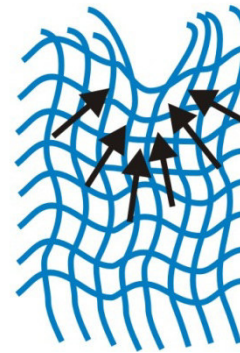
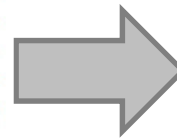
## MICROSCRATCHES AND THERMAL HEALING



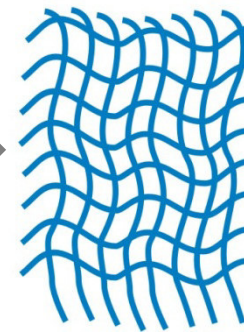
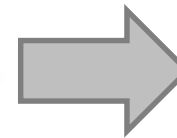
The cross-linked coating has its own "polymer memory"



Scratches physically displace the polymer chains. The hydrogen bonds are disconnected and look for new anchors whereas the fixed chemical bonds are unaffected. The polymer network is now in a state of fixed tension.



The relaxation of the polymer network is triggered by heat, which increases the mobility of the polymer chains



As the polymers relax, the hydrogen bonds reposition themselves in the original formation and the scratch disappears.

Source: ArpaLab