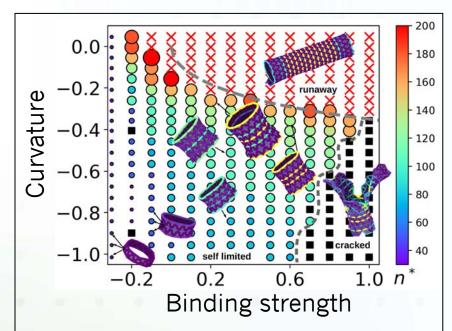
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Triangular monomers with positive curvature in one direction and negative curvature in another assemble into trumpet shaped objects predicted to have precise self-limited lengths due to frustration-induced stress. However, the continuum theory does not account for potential mechanisms by which the system could "escape" frustration. Computer simulations revealed two escape routes; runaway, in which trumpets flatten and cracked, in which trumpets escape frustration by forming defects that locally release elastic strain.



Phase diagram of trumpets. Symbols indicate phases: self-limited (circle), cracked (square), and runaway (red 'x'). For the self-limited phase, symbols are colored and sized according to the optimal size n^* . The gray dashed line is the result of a scaling argument.