DeuxNuts
Maths of the Mk3 trick thread
All slides view a slice through bolt
(But no bolts were harmed)
Start with ordinary nut and bolt threads
Cut notches into blue ‘normal’ nut
Notched nut still works normally
Extend ridges atop threads
Ridges of all heights pass through notched nut
So, why keep all ridges at the same heights?
Modulate ridge heights by $\sin \left(-\frac{1}{3} \Theta\right)$
Ridges modulate waves in reverse direction
Build red nut that rides waves atop ridges
Red nut rides waves moving left, Blue nut follows threads moving right