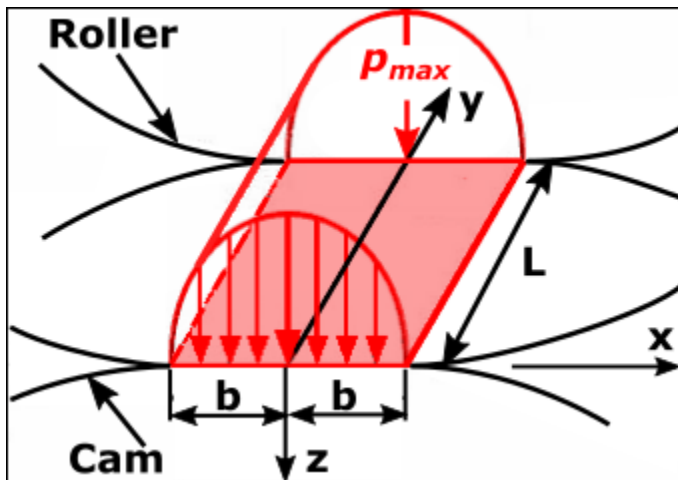
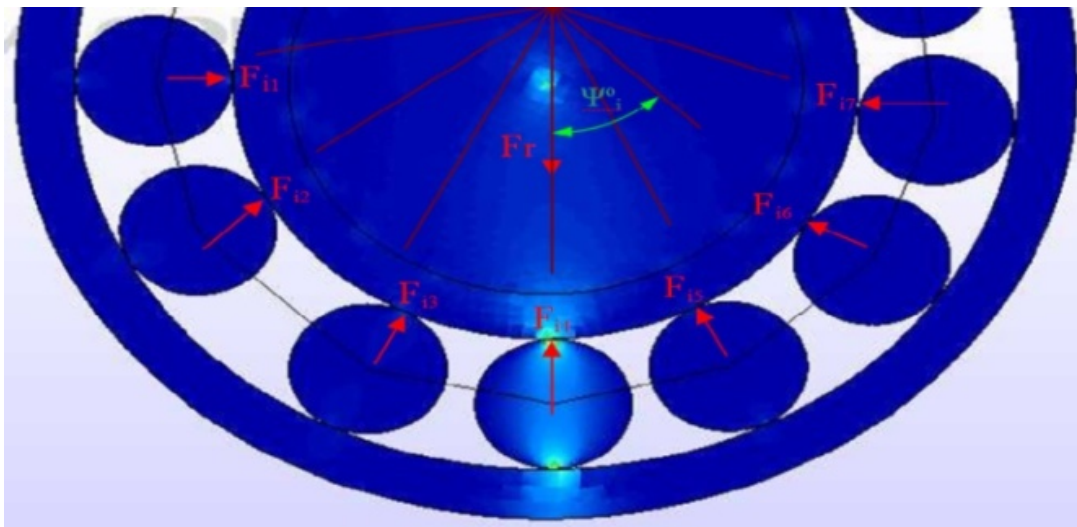
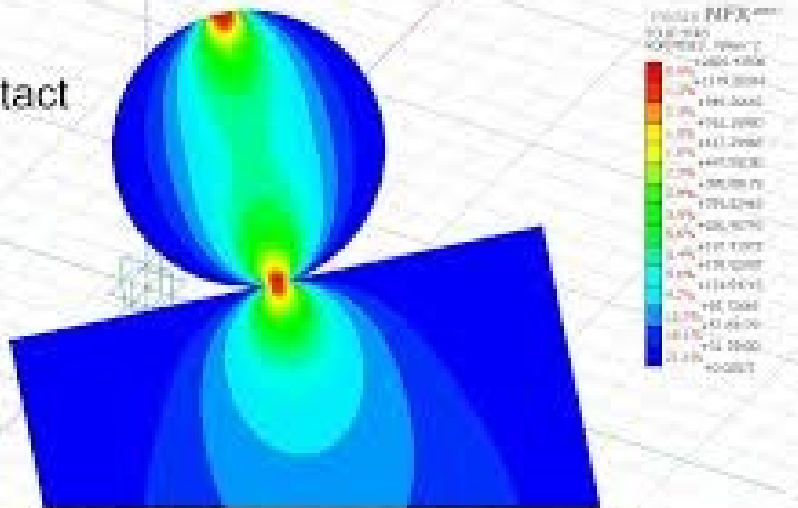


https://en.wikipedia.org/wiki/Contact_mechanics



http://mechdesigner.support/new_topic5.htm?toc=0&printWindow&

Hertz Contact Modelling



<http://article.sapub.org/10.5923.j.jmea.20110101.01.html>

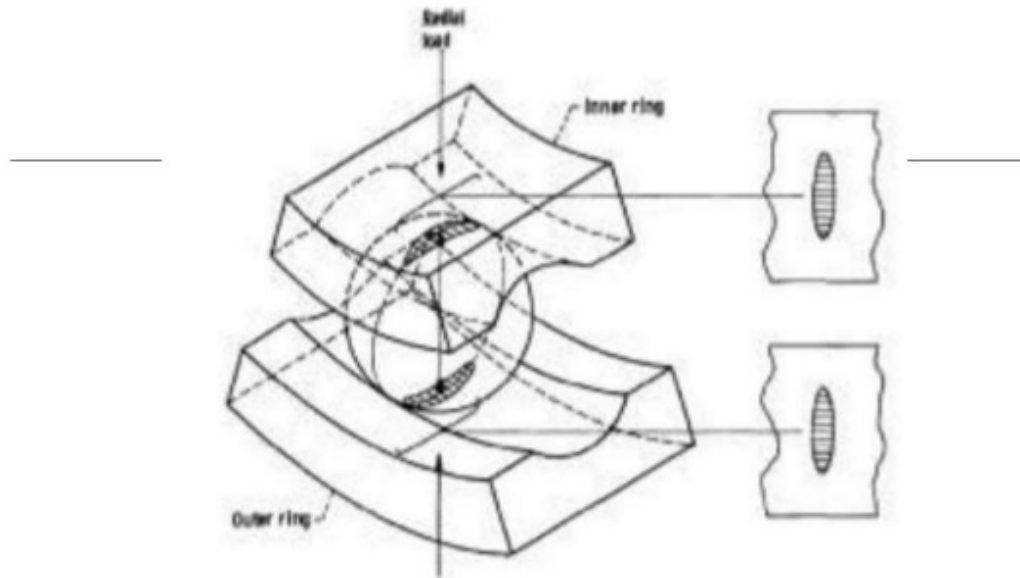
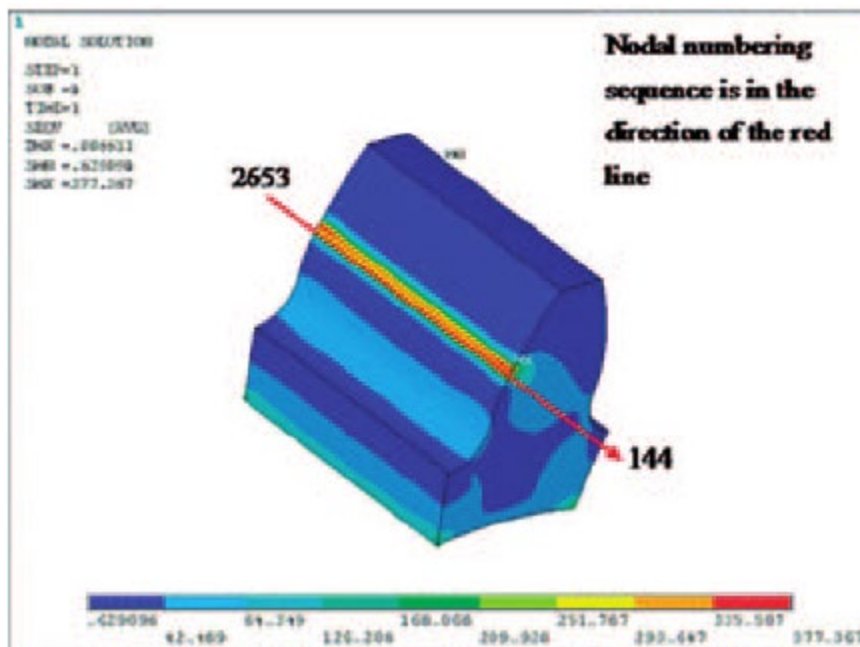
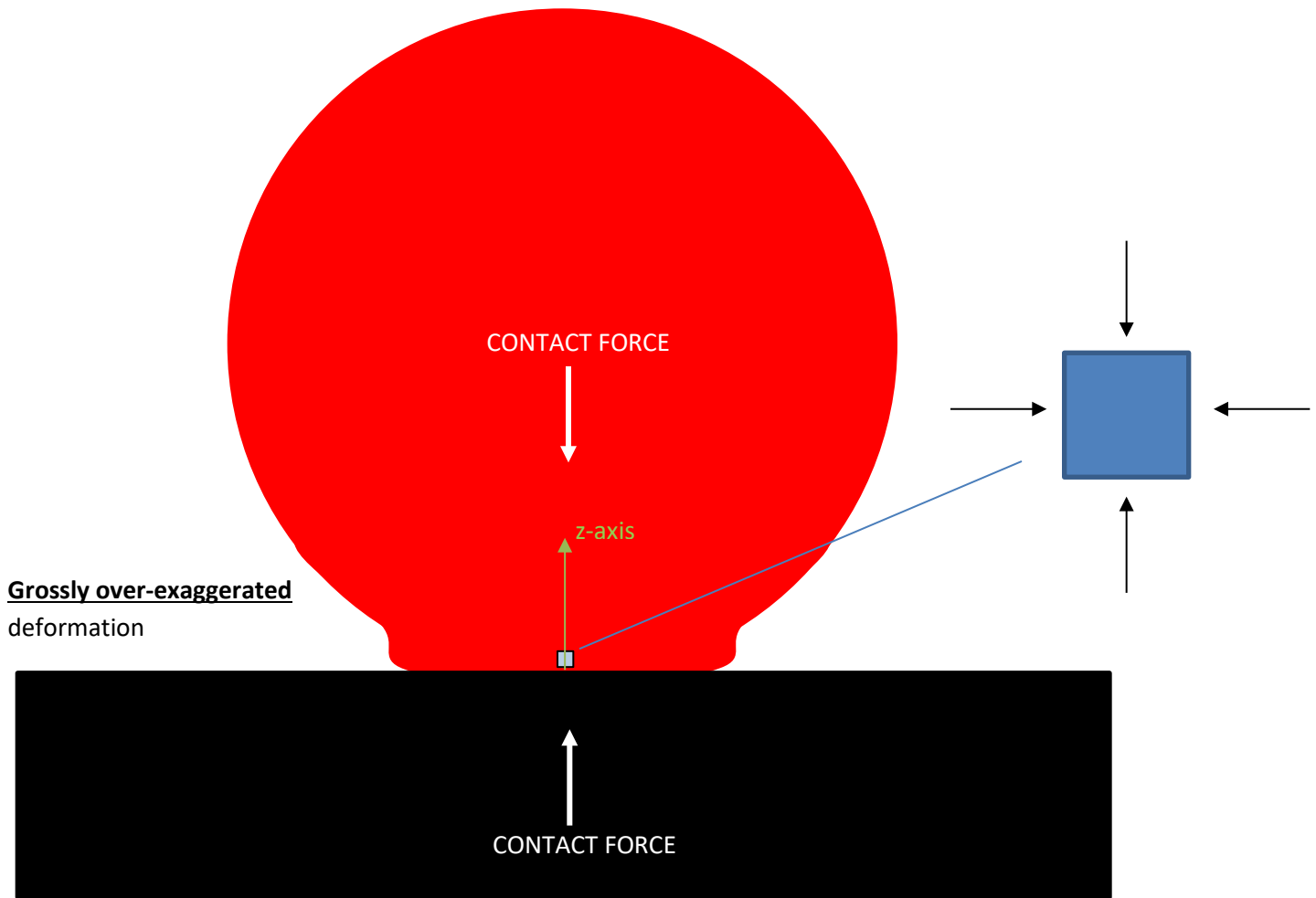


Figure 1. Contact areas in ball bearing

<https://www.slideshare.net/KaustubhGarud1/contact-stress-77751502>



https://www.researchgate.net/figure/283768055_Figure-14-Result-of-the-contact-analysis-of-a-cylindrical-spur-gear-using-ANSYS



The normal stress in the z-direction is clearly compressive, but what about the transverse direction (x, y direction?). It too is compressive – but why? The material at the contact plane wants to expand outward due to the compressive contact force and Poisson's effect. However, material further away has lower compressive stress along the z-axis and does NOT want to expand outward as much – so it constrains the material below it – pushing inward. The “inward push” is compressive stress in the x and y directions.