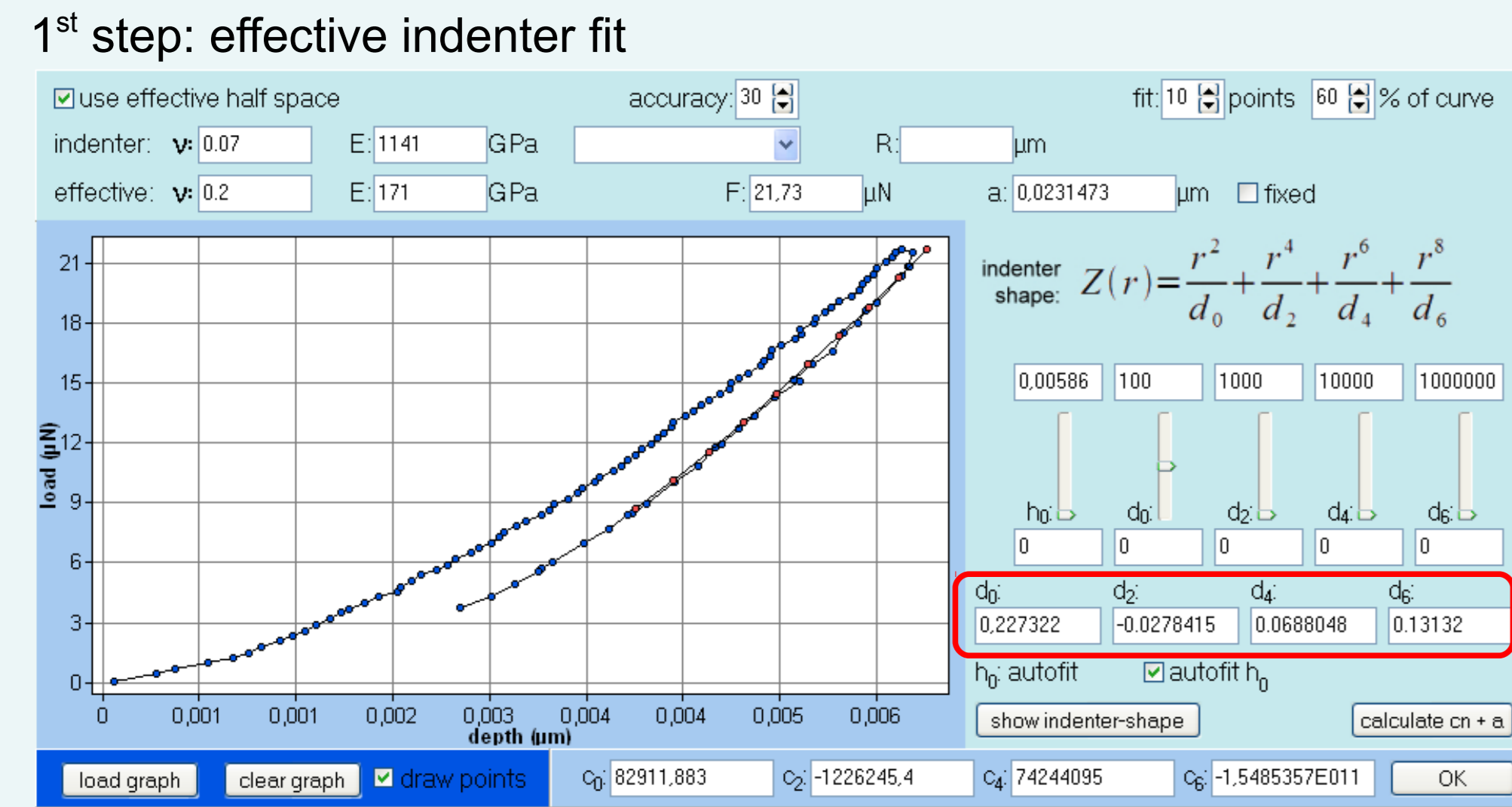
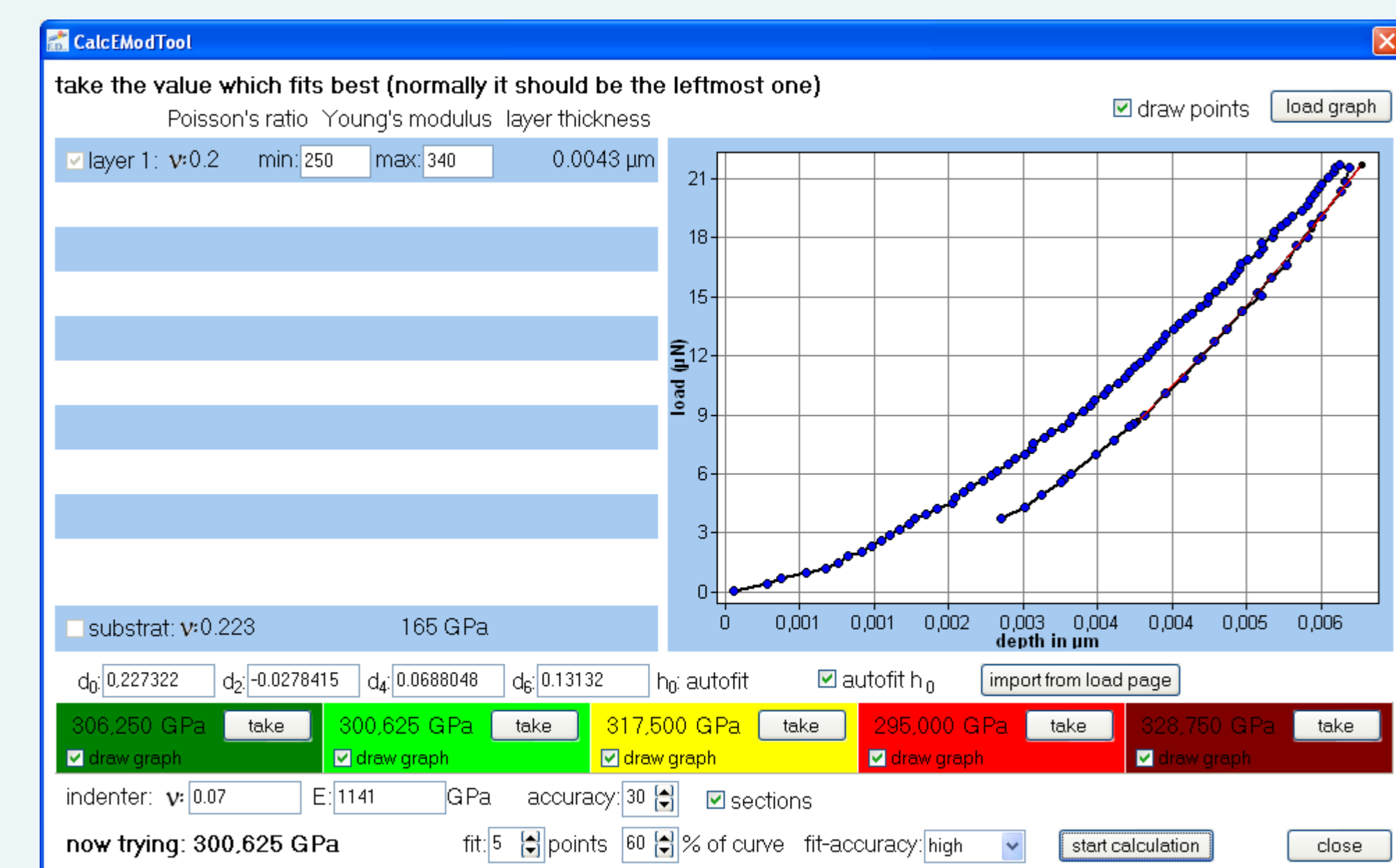


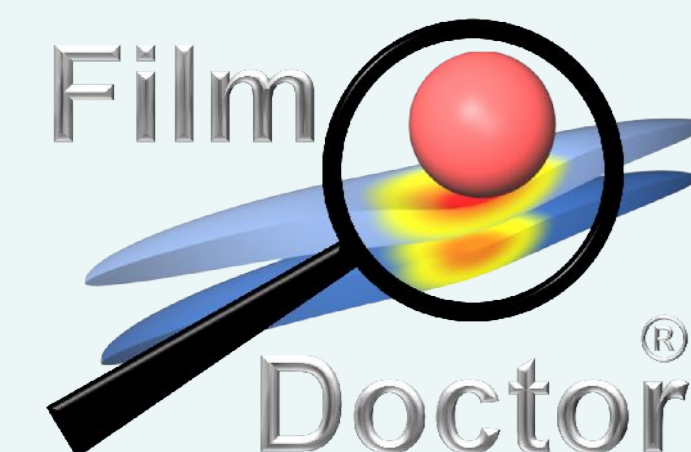
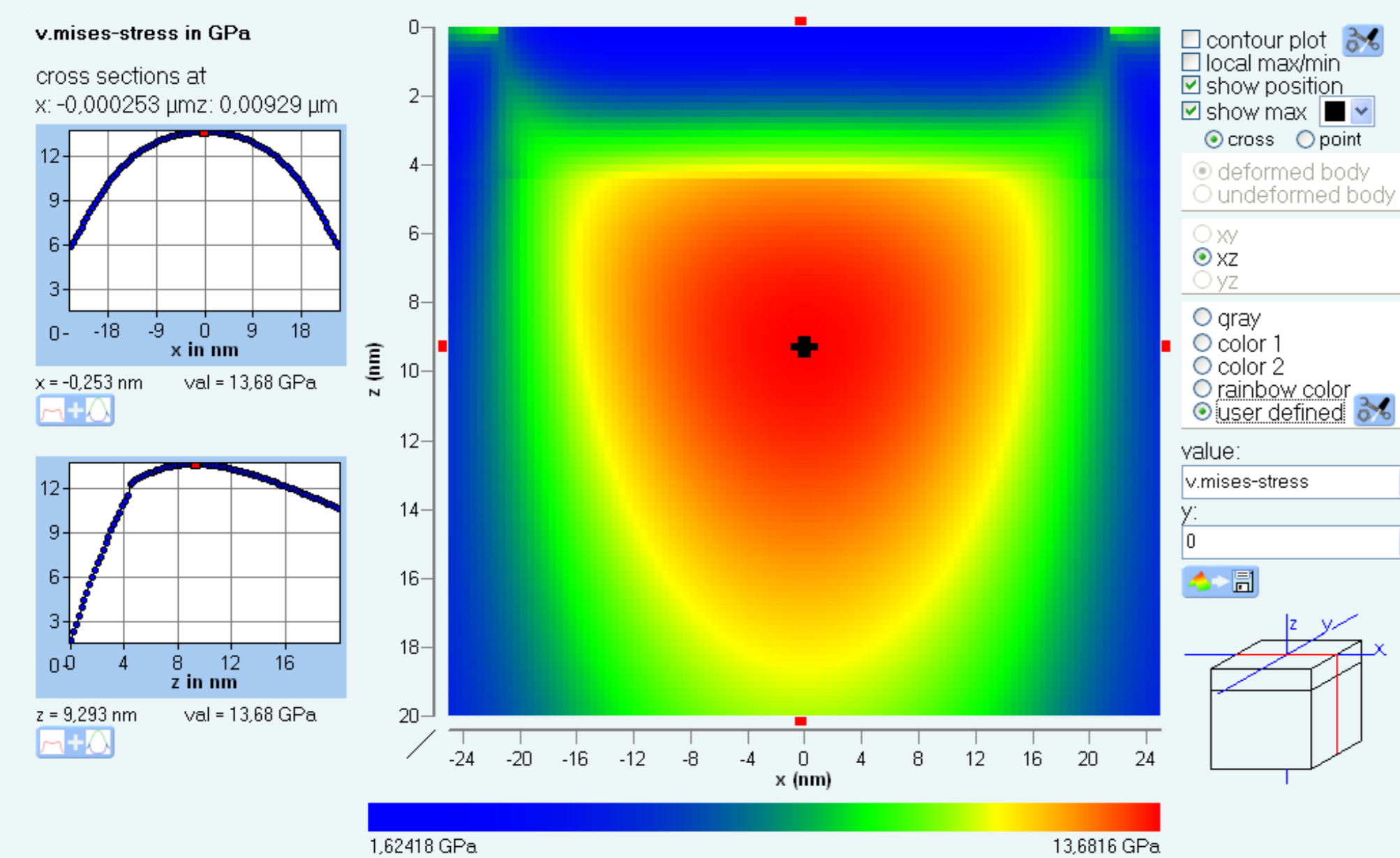
Oliver&Pharr for coatings → Young's modulus and Yield strength



2nd step: automatic determination of Young's modulus of the coating



3rd step: v. Mises maximum → Yield strength

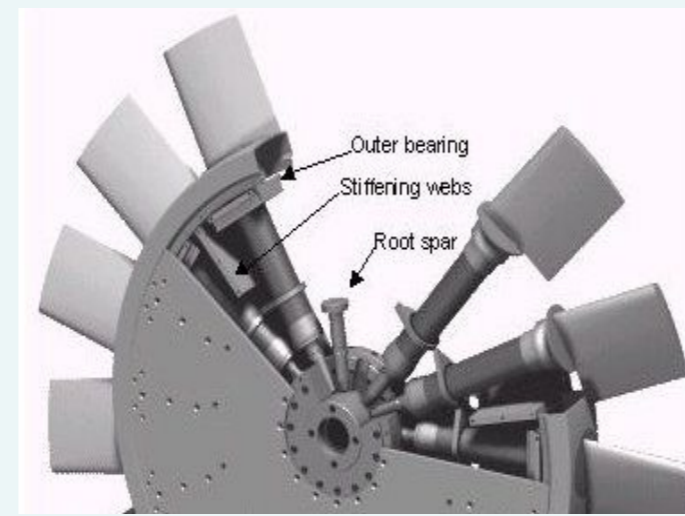


More information:

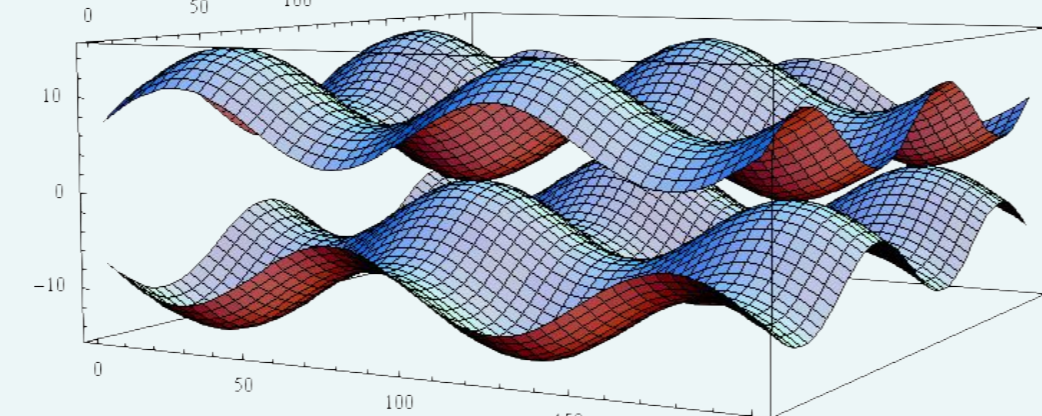
- www.siomec.de/doc/2007/001
- on the CD in your delegate pack
- talk F1-2-8 and E2-3-7

Coating and substrate failure

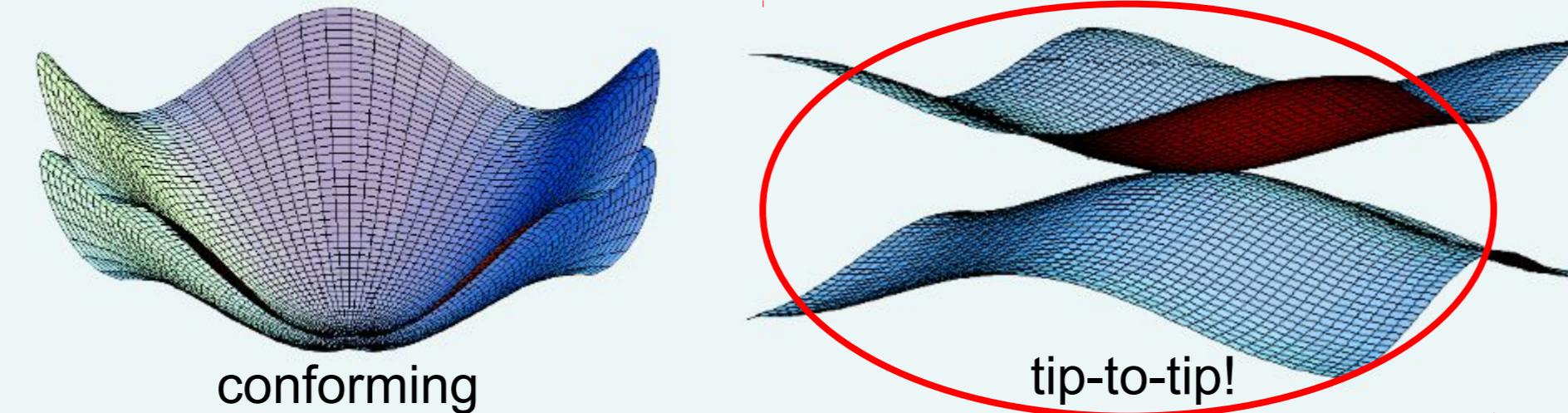
1. A major supplier of bearings and gear wheels applied a "protective" coating to these parts in an attempt to increase their service life.
2. The quality & performance of the coated parts, however, proved to be drastically inferior to that of uncoated parts → **Why?**
3. SIO was called in to help troubleshoot the problem.



We found → **roughness** causes the problems

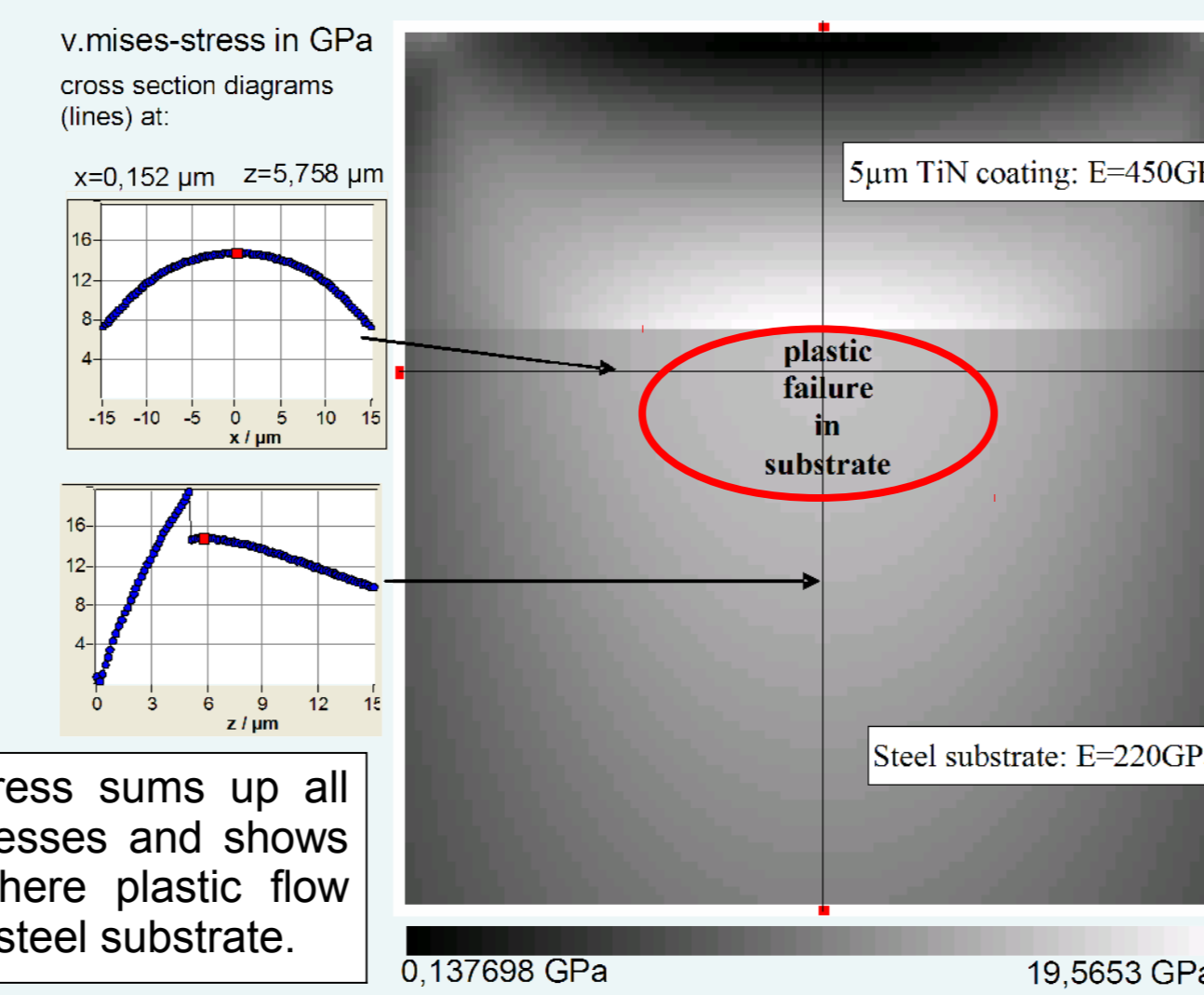


Two major contact situations:

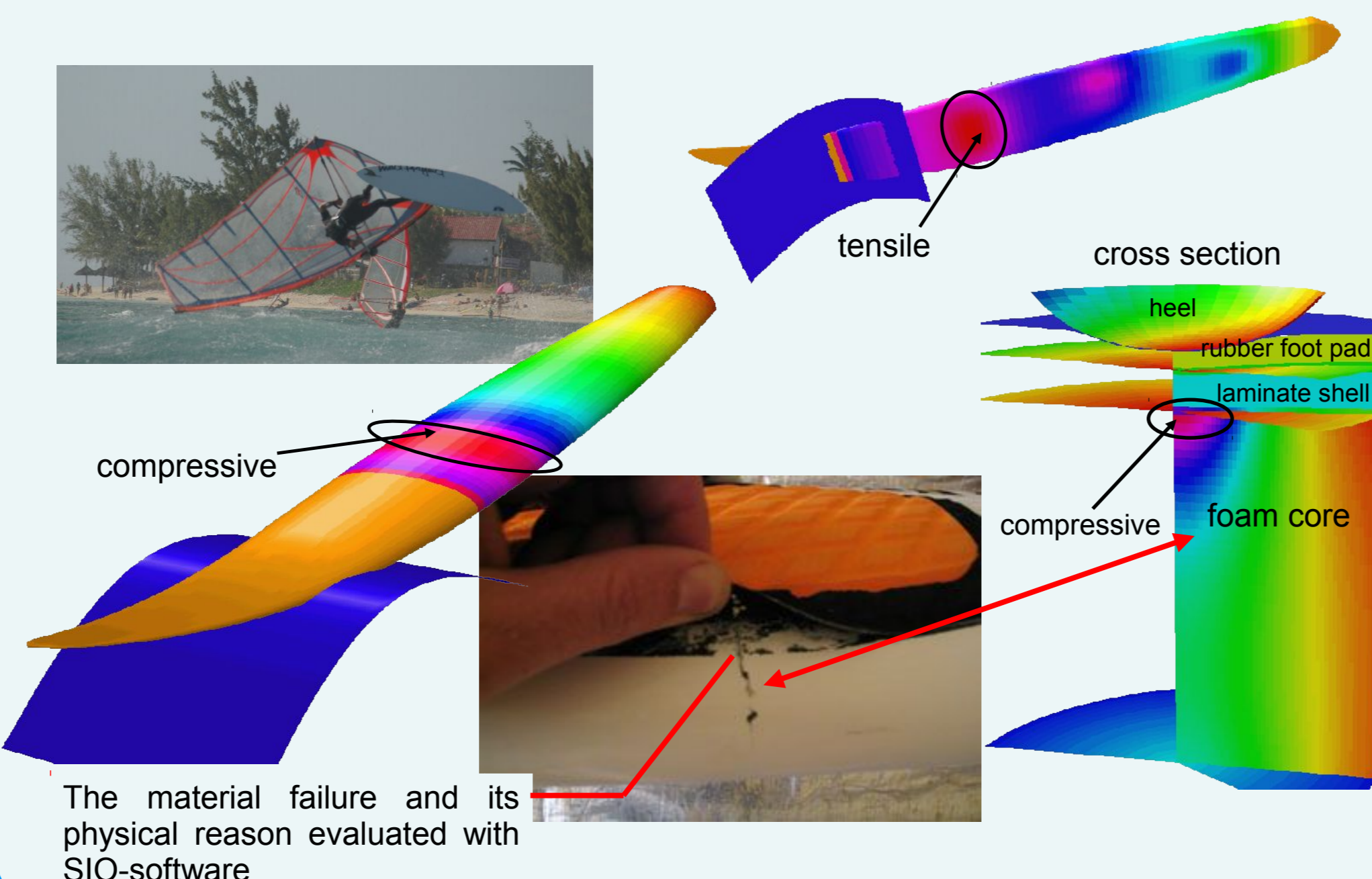


Evaluation by **FilmDoctor®**:

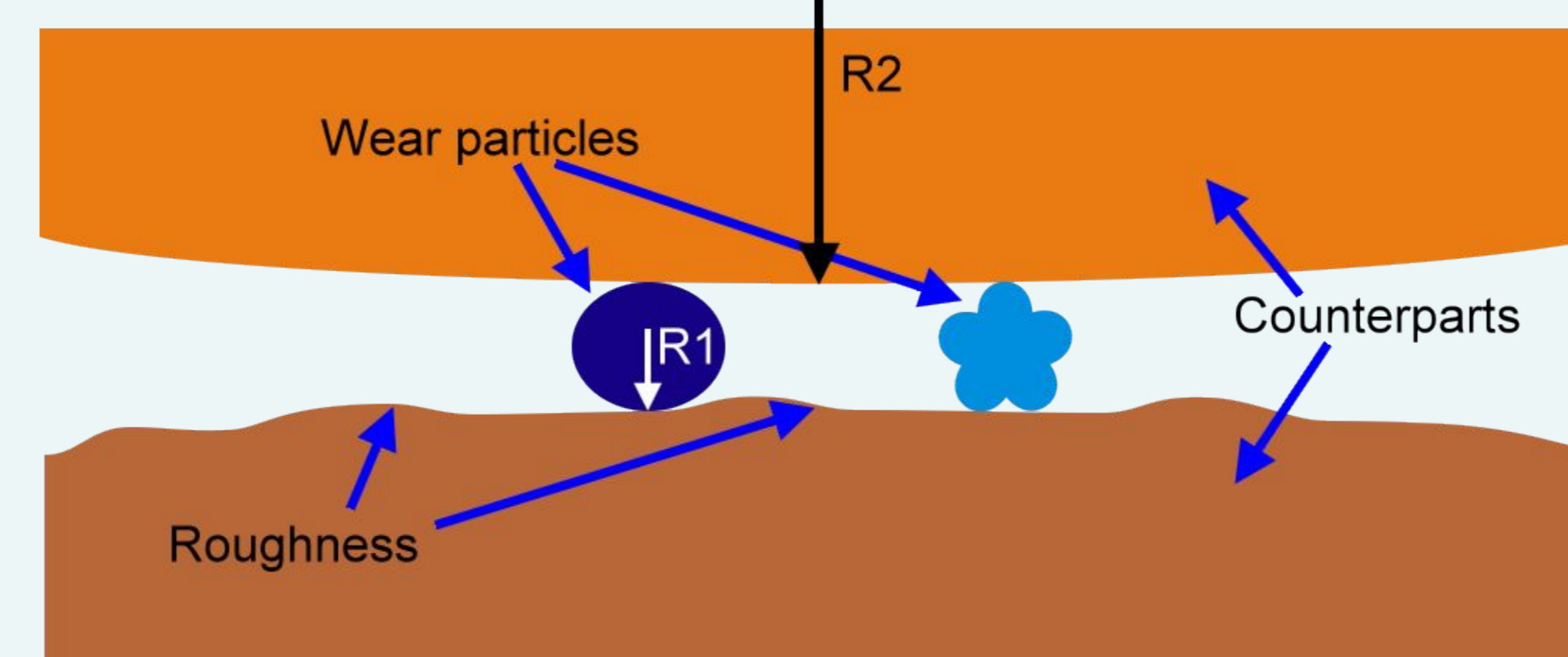
- coating failure
- ways to avoid similar problems
- **reduced costly product failures**



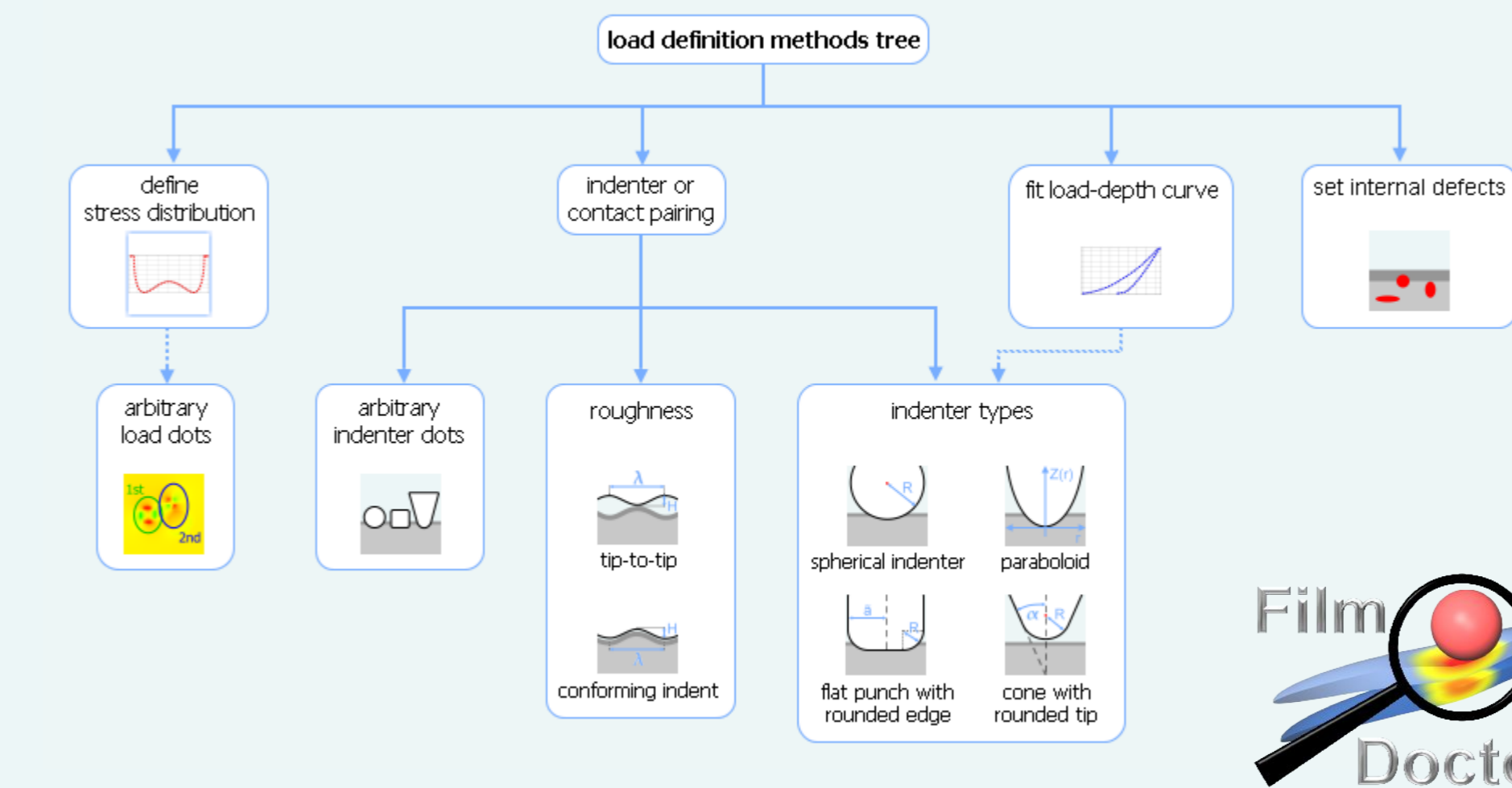
Modelling of mechanical loading of laminate structures → light and still stable



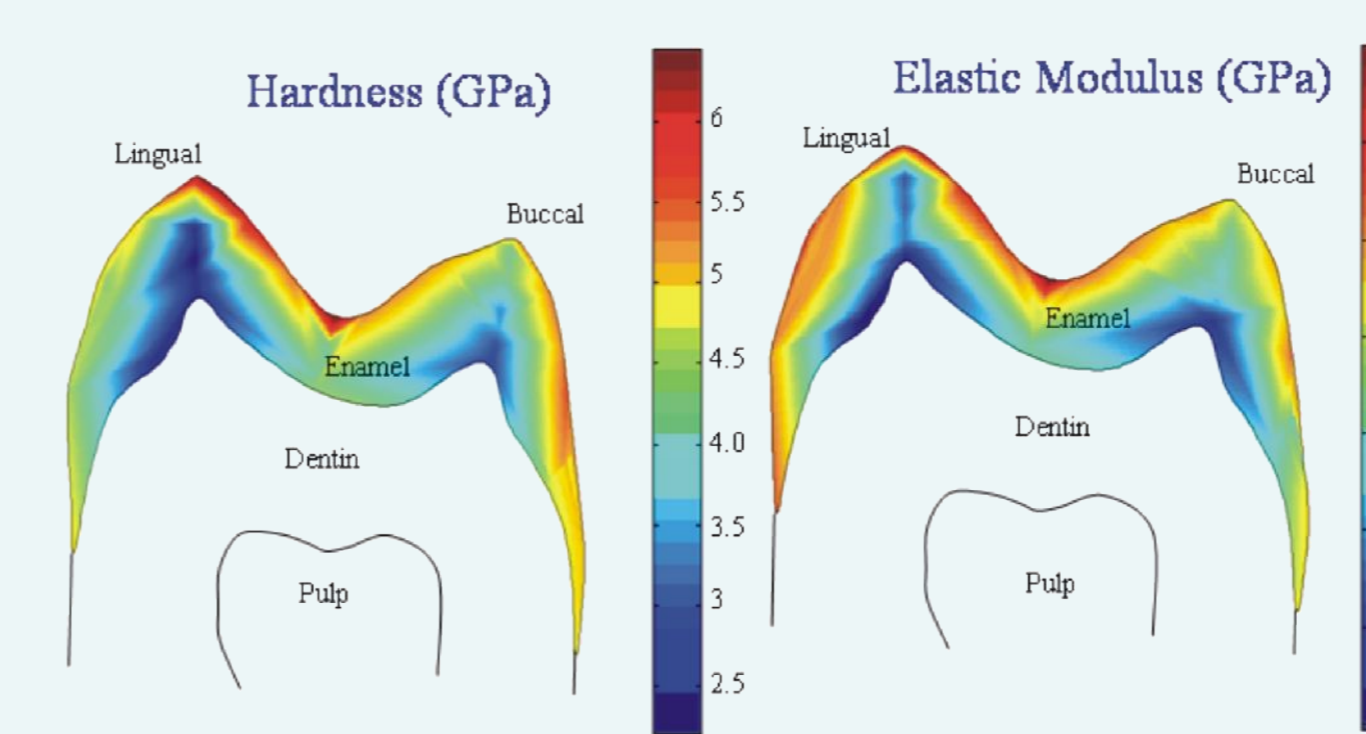
Avoiding transportation damage due to micro load and "scratch" effects



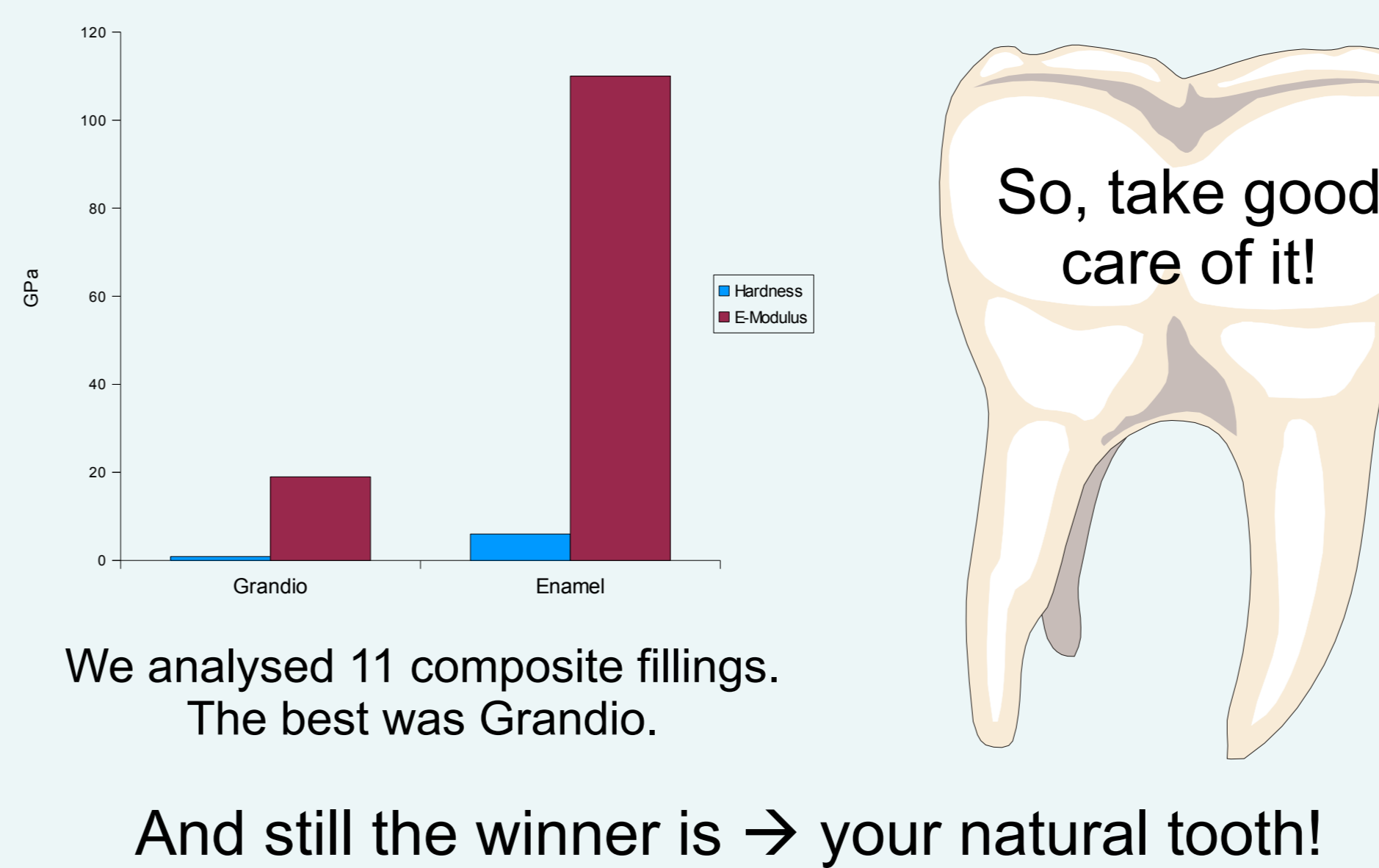
Due to a great variety of load definition methods which are provided by FilmDoctor® it is **very easy** to model this loading conditions:



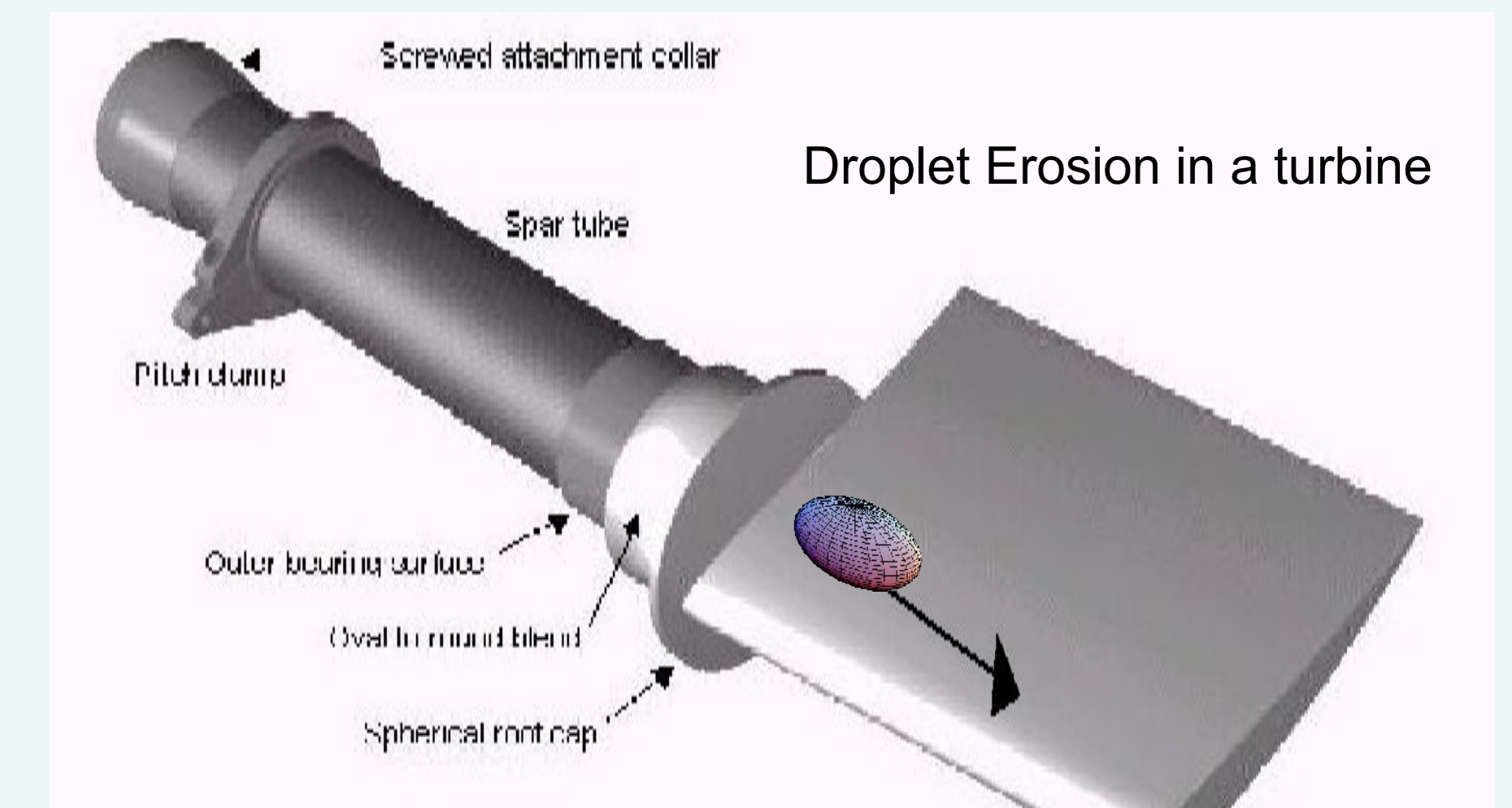
Modelling of medical and biomaterials – living long with long living artificial body parts



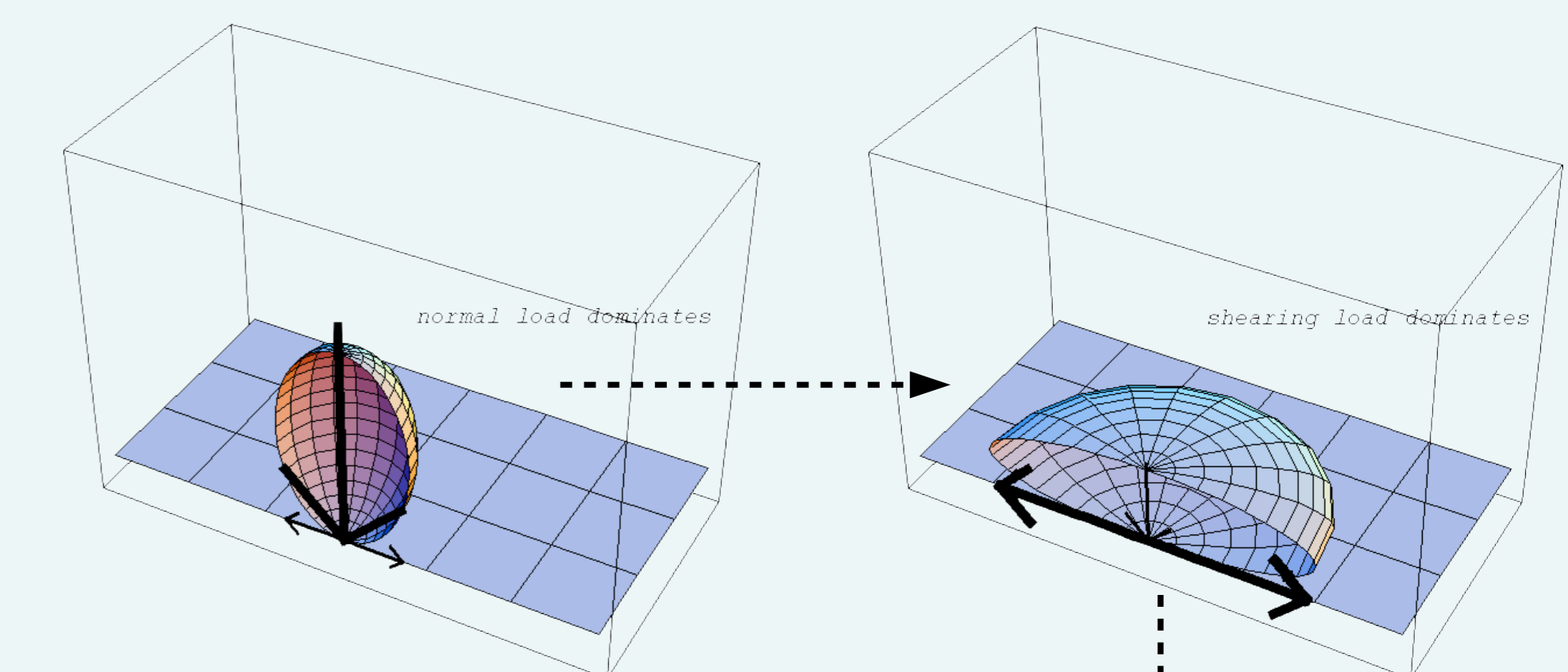
With increasing human life time, biocompatible materials and artificial body parts are more and more important.



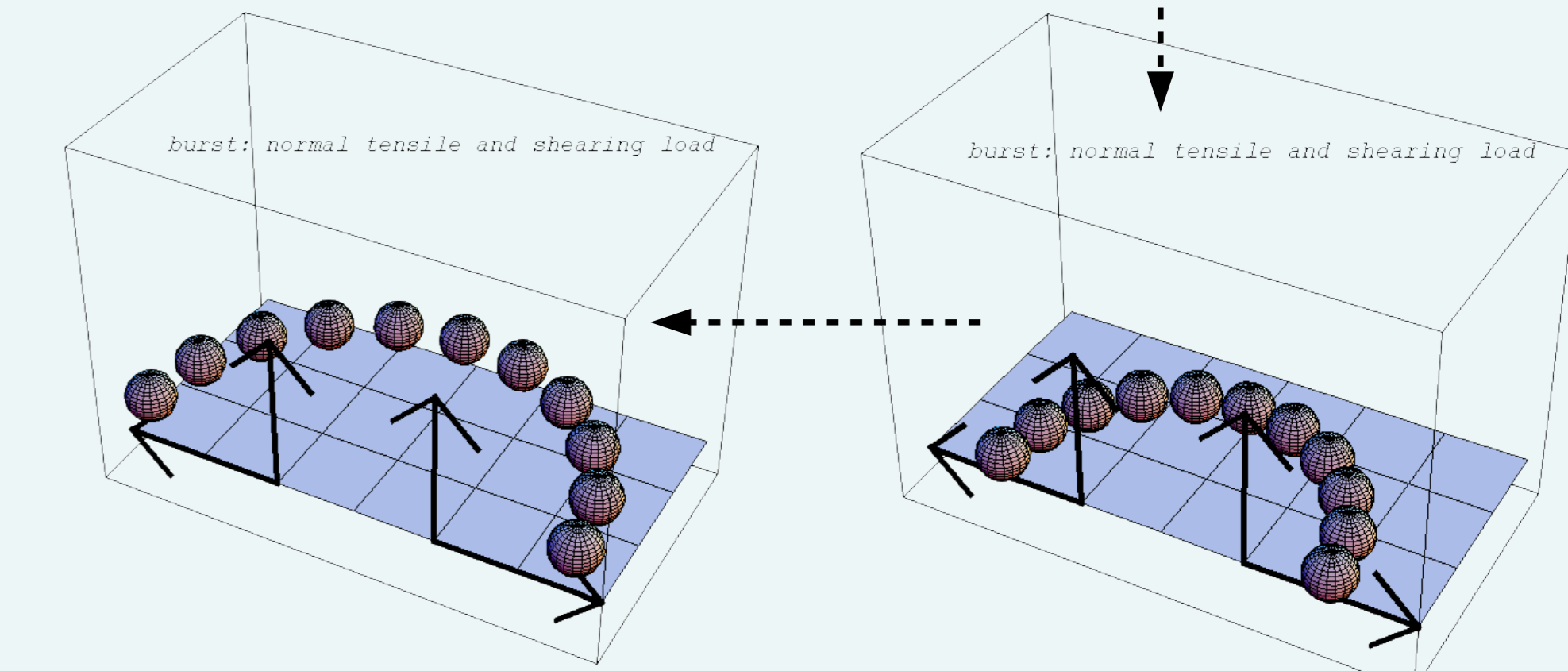
Mechanical Erosion



Impact phase:

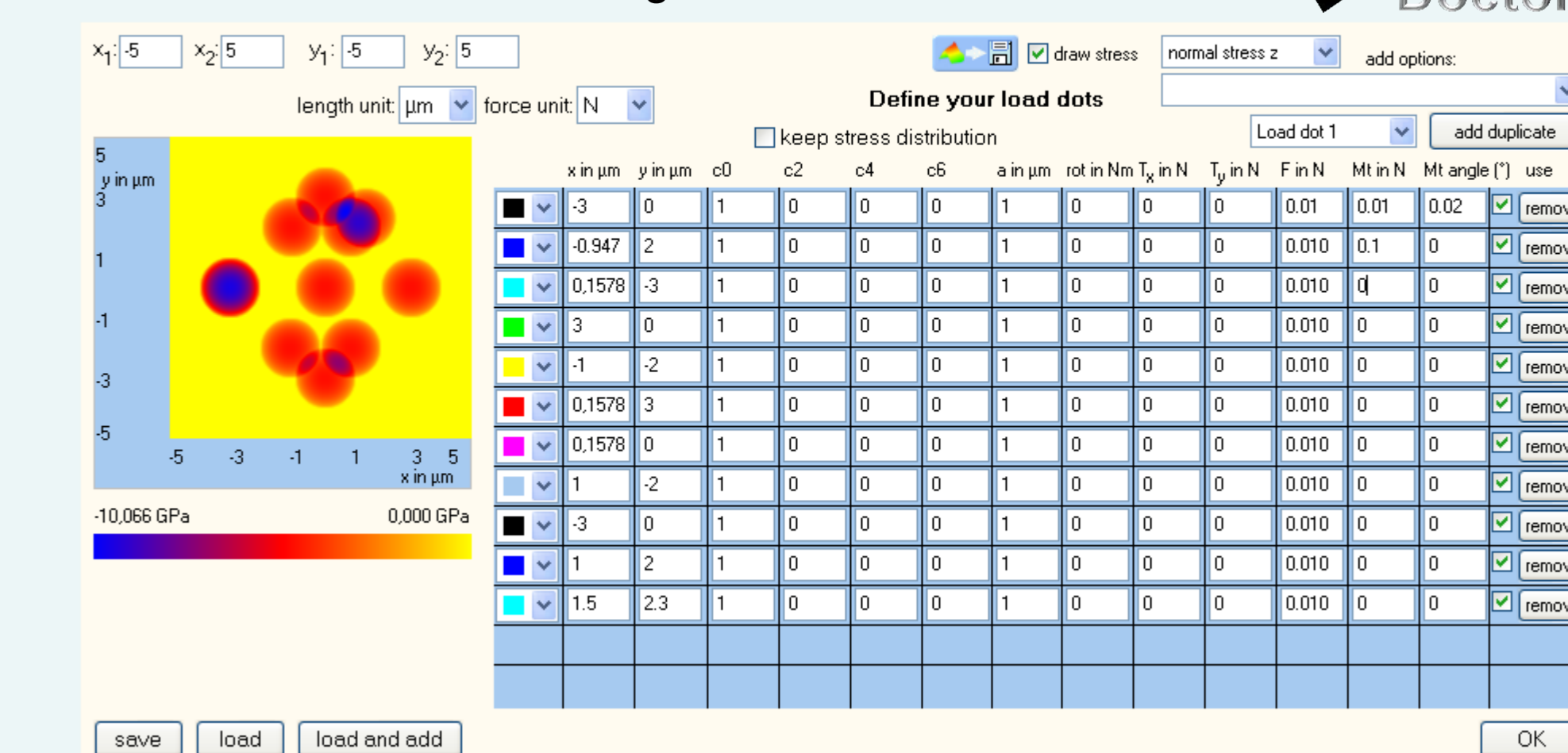


Burst phase:



Contact Modelling Phase:

Using the load dot method



Benefits:

- ✓ Get more information out of your measurements and material analysing
- ✓ Avoid expensive and time consuming trial-and-error tests
- ✓ Find and avoid failure sources
- ✓ Ward off unjustified customer complaints