Mechanica®
User Group UK

Sponsored by ELITE CONSULTING

NEWSLETTER – JULY 2008

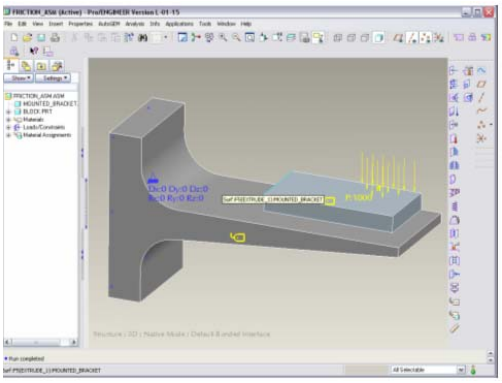
Welcome to the first newsletter for a while. The revived Mechanica User Group held its first meeting for 6 years on a rather wet 9th July at the TIC, Birmingham City University. There were 44 registrations and 27 people actually turned up. Of these 95% rated the meeting good or excellent. The majority preferred annual meetings, so look out for news of the next one on the web site.

After introductions from Dr. Tim Burden of TIC and Ray Ellender of the User Group & Elite Consulting, it was on to the main business of the day; learning more about Mechanica.

Wildfire 4.0

We were pleased to have Andy Deighton from PTC to tell us about what was new in Wildfire 4.0 Mechanica, namely;

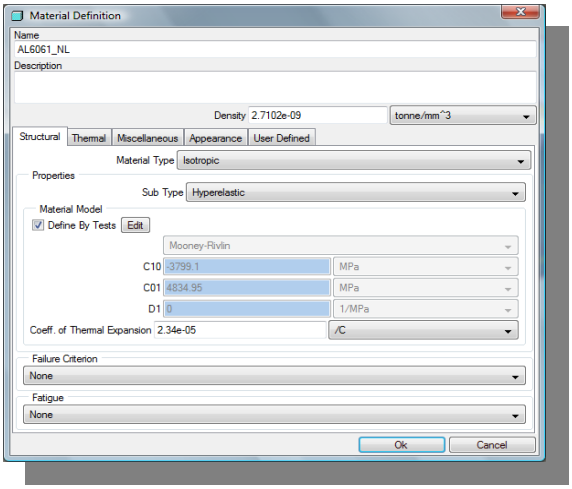
- Non-Linear hyper-elastic materials
- Contact with infinite friction
- Thermal contact resistance
- Assembly connectivity management
- New error logging & diagnostics
- Enhancements to results



Plus a host of other improvements, too numerous to mention here, but that are detailed in the excellent presentation that is available from the web site, www.promechuser.org. Andy also demonstrated some of the new features live.

Non-Linear Materials

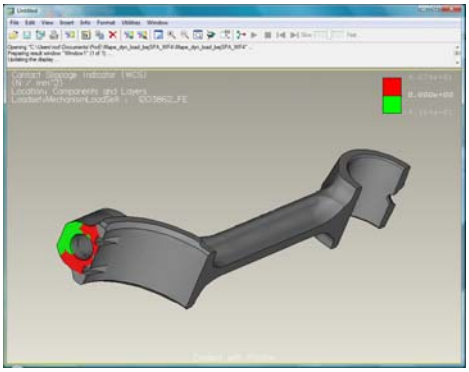
Rod Giles (now of Polaris Industries) then did a short presentation on using the new Non-Linear materials facility.



He reported that it had it had a very clever feature whereby if you had a stress-strain curve, you entered that data in, using 'Define by Tests' and Mechanica automatically characterised that curve for you – very neat.

Also it is recommended that a Large Deformation Analysis is run in order to obtain realistic results. There is a PTC TAN (137273) to this effect.

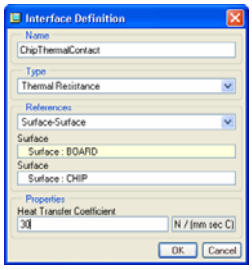
Contact with Friction



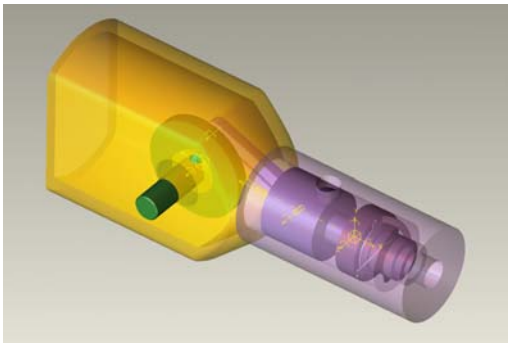
Rod Giles went on to show the new Contact with Friction functionality being used in the analysis of a con-rod assembly.

With this, it is possible to nominate a friction coefficient and then to see whether there would have been slippage at any of the contact surfaces.

Thermal Contact Resistance



Ray Ellender of Elite Consulting showed not only how to use the new Thermal Contact Interface in Mechanica, but also how to estimate heat transfer coefficients and contact resistances from first principles, using a lot of complicated equations!



NAFEMS Paper

After lunch, Ray Ellender and Rod Giles then presented a paper that was given at the recent NAFEMS conference, showing how CETol and Mechanica could be used together to produce a robust design of a medical device that would work properly throughout the likely tolerance range to meet 6-Sigma targets

Wildfire 3.0

Ray Ellender reminded people of the major features in Wildfire 3.0

- Inertia Relief
- Weighted Links
- Pro/ENGINEER materials
- Volume Heat Loads
- Process Guide

Hints & Tips

Ray Ellender also gave out some hints and tips, such as

- Rigid Connections & Interfaces
- Surface Regions
- Volume Heat Loads
- Convection on Shells
- Isotropic Materials for PCB's

Wildfire 5.0

The session finished with Andy Deighton of PTC taking the stage again to give a taste of what is planned for Wildfire 5.0 and beyond. However the attendees were all sworn to secrecy, so you will have to come to the next meeting to find out more. However you can find out more about everything else from the web site; www.promechuser.org.uk.