

McStas McXtrace



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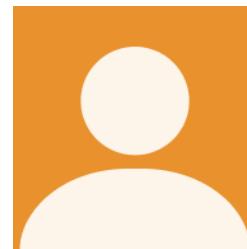


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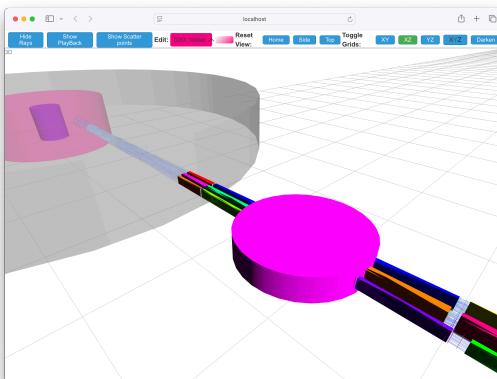
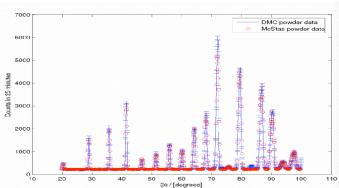
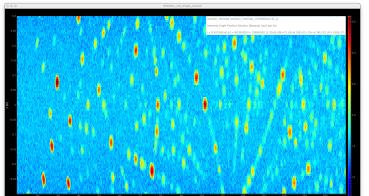
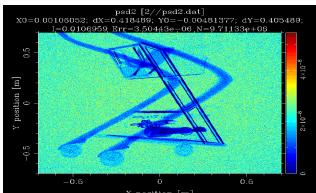
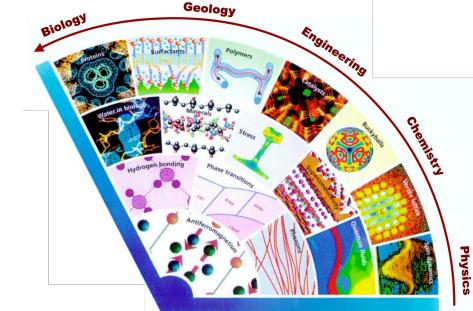
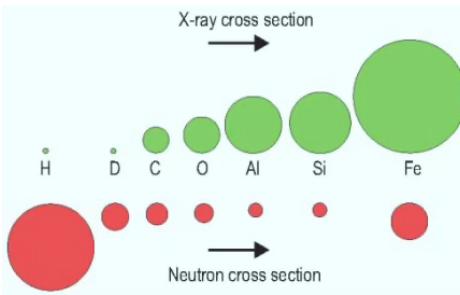


(neutrons since 1998) and (X-rays since 2009)

Tell us about your application:

- Algorithmic motif: **Monte Carlo ray-tracing**
 - Language is (lex/yacc) **DSL**  ISO C
 - Libraries – mostly ‘internal’ but some GSL, Xraylib, MCPL, NCrystal, NeXus (HDF5)
 - GPU port via **OpenACC**, ~ 95% functional via:
 - **Dresden** Hackathon 2017, **Espoo** Hackathon 2019, own efforts.
 - **Focus this hackathon:**
Compute performance tuning, finding bottlenecks

N: research reactors, spallation sources,
X: labs, synchrotrons, FELs, space telescope



OpenACC
More Science. Less Programming.



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Goals

- Learn to practically use, (master?) the Nvidia **profilers**/performance tools
- Get a better understanding of the **limitations** of the current implementation
- Try to identify obvious **bottlenecks**
- Get **ideas!**
- **Hack!**
- **Optimize!**
- Run simulations!
- Have **fun!** :-)

