

# McStas McXtrace



## Team



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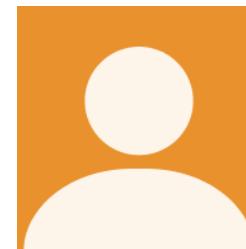


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## Team Mentors



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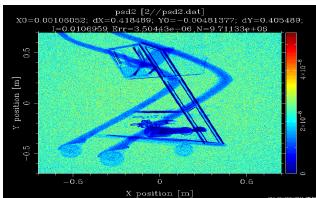
(neutrons since 1998) and (X-rays since 2009)

Tell us about your application:

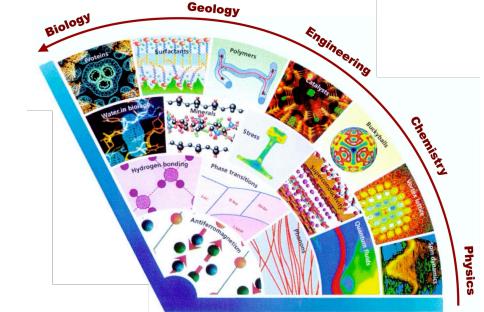
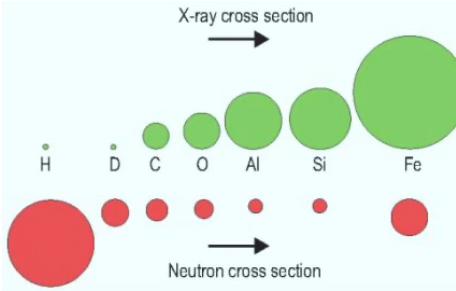
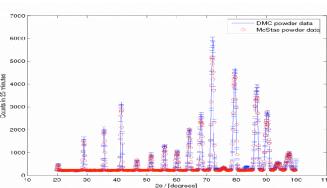
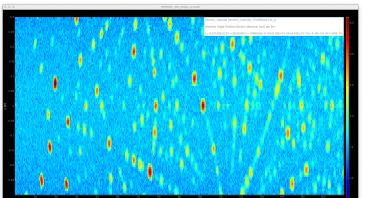
- Algorithmic motif: **Monte Carlo ray-tracing**
- Language is (lex/yacc) **DSL**  ISO C
- Libraries – mostly ‘internal’ but some GSL, Xraylib, MCPL, NCrystal, NeXus (HDF5)
- GPU port via **OpenACC**, ~ 95% functional via:
  - **Dresden Hackathon 2017, Espoo Hackathon 2019**, own efforts.
- **Focus this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



**OpenACC**  
More Science, Less Programming

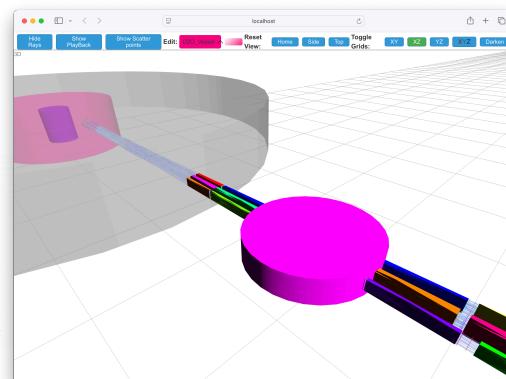


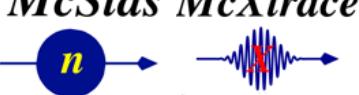
 **OPEN  
HACKATHONS**



‘Particle beams to probe condensed matter’, design  
‘scattering instrumentation’ at user facilities.

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



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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!** :-)

