

## **Existing DTU-ESS-KU collaborations** - working together on/with McStas

## Peter Willendrup, ESS DMSC and DTU Physics





## **McStas Introduction**

- Flexible, general simulation utility for neutron scattering experiments.
- Original design for Monte carlo Simulation of triple axis spectrometers
- Developed at DTU Physics, ILL, PSI, Uni CPH, ESS DMSC
- V. 1.0 by **K Nielsen & K Lefmann** (1998) RISØ
- **PW** joined in 2002



**McStas** 

 Currently ~6 people on joint McStas-McXtrace team but only 2 full time, based at ESS DMSC / DTU



Project website at

mcstas-users@mcstas.org mailinglist

CVS

http://www.mcstas.org

The neutron is a multidisciplinary probe for structure and dynamics of condensed matter systems - 'Swiss army knife'



- complementary to X-rays















## **15 instruments**

200 m

- 5 Large-scale structure instruments
- **5** Diffractometers
- 5 Spectrometer





## McStas collaboration

Examples of who contributed what







#### McStas collaboration DTU Fysik Examples of who contribu Kim Lefmann Kristian Nielsen Author of many components, orig. Got input from "power user", IRISØ RISØ physicists, supervised many architect behind KU stud. and **McStas** "internals" and secured funding. LeX-Yacc gram. Part of McStas all Releases 1.0-1.4 along the way. 1.0 1998 N Kurt Clausen: v. 3.4 2023 ANNIVERSARY $\langle \cdot \rangle$ Came up with PAUL SCHERRER INSTITUT original idea of NEUTRONS FOR SCIENCE "framework", secured first EU PALLATION funding. OURCE

# McStas collaboration

Examples of who contribu Kim Lefmann

### Kristian Nielsen

Got input from RISØ physicists, architect behind "internals" and LeX-Yacc gram.

Releases 1.0-1.4



Author of many components, orig. "power user", supervised many KU stud. and secured funding.

Part of McStas all along the way.

Kurt Clausen:

Came up with original idea of "framework", secured first EU funding.















imaging

neutron source and the MAX-IV X-ray synchrotron in Lund.

mathematical

Bohr Institute, University of Copenhager











https://e-learning.pan-training.eu (formerly e-neutrons.org and "Virtual Neutrons for Teaching")











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DTU DTU Fysik



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e we	Course	Соц	e-neutrons Original site Wiki main page Recent changes Help Quick links Introduction Basic scattering	This wiki about neutron scattering has a wide-branched tree-structure with many levels of sub-branches allowing for both a quick overview and specialization.     The topics correspond to the chapters in the lecture notes Neutron Scattering: Theory, Instrumentation and Simulation by Kim Lefmann (Nano@- & eScience @ Centres, University of Copenhagen and ESS @).     • Basics of neutron scattering     • Introduction to neutron scattering     • Basics of neutron scattering     • Basics of neutron scattering     • Basics of neutron scattering								
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## Let's work even closer together!

- McStas has at least one leg in all camps!
- We have long experience working together!
- We do really intersting stuff together!
- Students like working with our code and tools!
- Projects possible at a wide range of scales
- We can simulate any neutron instrument and one or more relevant sample(s) for it

![](_page_24_Figure_8.jpeg)