McStas sample model functionality-matrix

Status of the McStas sample components, september 2015 (post McStas 2.2a / pre McStas 2.3)

See also: McStas sample models for Diffraction, McStas sample models for Imaging, McStas sample models for Large-scale Structures, McStas sample models for Spectroscopy

	McStas sample comp + author info in italic	**Model description**	**Main use areas**	**Incoherent scattering**	**Absorption**	**Bragg or other elastic scattering (type)**	**Inelastic scattering (type)**	**Multiple scattering**	**Non-trivial sample geometry**
1	Incoherent (Vanadium, Plexiglass etc.) *McStas team*	Simple incoherent scatterer	Generic, imaging	✓	✓	✗	✗	✓ (analytic approach)	✓
2	Tunelling_sample *McStas team / Kim Lefmann*	Idem 1, plus tunneling peaks and QE broadening	Quasi-elastic scattering, backscattering	✓	✓	✗	✗/✓ (Quasielastic broadening)	✓ (analytic approach)	✓
3	PowderN *McStas team / Peter Willendrup*	Debye-scherrer cones, tabular input (lau / laz)	Powder diffraction, imaging	✓	✓	✓ (Debye-Scherrer cones)	✗	✗	✓
4	Sample_nxs *Mirko Boin, HZB*	Debye-scherrer cones, unit-cell / atom input list	Powder diffraction, (future: imaging)	✓	✓	✓ (Debye-Scherrer cones)	✗/✓	✓	✗
5	Single_crystal *McStas team*	Bragg spots, tabular input (lau). "Perfect imperfect" single crystal with mosaicity / lattice variation	Single crystal and MX diffraction	✓	✓	✓ (Bragg spots)	✗	✓	✓
6	Sans_spheres (and other similar) *McStas team and Martin Cramer Pedersen, KU*	Hard spheres in thin solution and other models, defined per-component...	SANS	✓	✓	"✓" - SANS	✗	✗	✗
7	SANS_benchmark2 (and a few other stand-alone models) *Heinrich Frielinghaus, FZJ/JCNS*	Experimentally-benchmarked model set for SANS	SANS	✓	✓	"✓" - SANS	✗	✓ up to 10 orders	✗
8	SASview_models !yet **unreleased**! *McStas team*	"Any" model from SASview / SASmodels	SANS	✓	✓	"✓" - SANS	✗	✗ at this point	✗
9	Multilayer_sample *Rob Dalgliesh, ISIS STFC*	Multilayer-sample (dynamic scattering theory) with incoherent background	Reflectometry	✓	✓	"✓" - Reflectivity curve	✗	✗	✗
10	Phonon_simple *McStas team / Kim Lefmann*	Single-branch acoustic phonon in FCC lattice	Inelastic scattering phonons	✗	✗	✗	✓ (phonon, at this point FCC lattice only)	✗	✗

11	Isotropic_Sqw *McStas team / Emmanuel Farhi*	Structure and dynamics in isotropic materials (liquids, powders etc.)	Inelastic scattering, diffraction, isotropic materials, imaging	✓	✓	✓ (Debye- Scherrer cones)	✓ isotropic inelastic scattering	✓	✓
12	Res_sample *McStas team*	Resolution-oriented sample component	Generic	"✓"	✗	✗	"✓" flat, isotropic inelastic scattering	✗	✗
13	TOFRes_sample *McStas team / Kim Lefmann*	Idem Res_sample, with TOF support	Generic	"✓"	✗	✗	"✓" flat, isotropic inelastic scattering	✗	✗
14	Spot_sample *Garrett Granroth, SNS/ORNL*	Resolution-oriented sample component Dirac delta-functions in (Q and energy)	Inelastic scattering	✗	✗	"✓"	"✓"	✗	✗
15	**Below this line not yet available in repo**	**Below this line not yet available in repo**	**Below this line not yet available in repo**	**Below this line not yet available in repo**	**Below this line not yet available in repo**	**Below this line not yet available in repo**	**Below this line not yet available in repo**	**Below this line not yet available in repo**	**Below this line not yet available in repo**
16	"4D S(\vec(Q),\omega)" Duc Le - soon at ISIS STFC?	Ala Isotropic_Sqw, but with crystal lattice	Elastic and inelastic experiments with crystals	✓	✓	✓	✓	✓	?¿?
17	"Polycrystal" *Alberto Cereser + Erik Knudsen, DTU Physics*	Engineering-diffraction / imaging oriented multigrain sample	Engineering-diffraction / imaging	✓	✓	✓ (Bragg spots)	✗	✓	✓
18	"Magnetic single crystal" *Linda Udby KU, + Erik Knudsen, DTU*	Bragg spots from lattice ala Single_crystal plus magnetic lattice. Tabular input (lau)	Single crystal magnetic diffraction	✓	✓	✓ (Bragg spots)	✗	✓	✓ / ?¿?
19	"Reflectometry sample" *Jochen Stahn, PSI*	Reflectivity-curve sample	Reflectometry	✓	✓	"✓" - Reflectivity curve	✗	✗	✗