McStas sample model functionality-matrix

(Master version available at the URL https://confluence.esss.lu.se/display/MCSTAS/McStas+sample+model+functionality-matrix)

Status of the McStas sample components, relevant for McStas 2.5 (Released december 2018)

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	✓	✓	✗	✗	✓	✓
2	Tunelling_sample *McStas team / Kim Lefmann*	Idem 1, plus tunneling peaks and QE broadening	Quasi-elastic scattering, backscattering	✓	✓	✗	✗ / ✓ (Quasielastic broadening + tunnel peaks)	✓ (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	Union components, Mads Bertelsen, ESS	A set of components that allows to build a complex sample/sample environment from basic geometries and physics /material properties	Generic	✓	✓	✓ Single crystalline or Powder crystalline	✓ - single acoustic phonon being included 2018)	✓	✓ - if built from cylinders, spheres, boxes, ...)
16	Single_crystal_inelastic Duc Le, ISIS STFC	4D-equivalent of Isotropic_Sqw / Single_crystal	Elastic and inelastic experiments with crystals	✓	✓	✓	✓	✓	?¿?
17	Magnon_bcc *McStas team / Kim Lefmann*	FM / AFM magnon in BCC lattice	Inelastic scattering magnon	✗	✗	✗	✓ (magnon, at this point BCC lattice only)	✗	✗

18	NCrystal_sample Xiao Xiao Cai, DTU Nutech /ESS	Single crystal and powder diffraction, with isotropic inelastic scattering	Powder and Single_crystal diffraction, imaging				 (in an isotropic form)		
19	**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**
20	"Polycrystal" *Alberto Cereser + Erik Knudsen, DTU Physics*	Engineering-diffraction / imaging oriented multigrain sample	Engineering-diffraction / imaging			 (Bragg spots)			
21	"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)			 / ?¿?
22	"Reflectometry sample" *Jochen Stahn, PSI*	Reflectivity-curve sample	Reflectometry			"  " - Reflectivity curve