Mantid 4 libraries and names

- Users have difficulty finding algorithms/objects
- Reorganize imports
- Rename algorithms
  - a lot of the information is where you import the algorithm from
  - `CalMuonDeadTime` becomes `mantid.muon.CalculateDeadTime`
  - `Get...` returns a value (number, string, array, ...)
  - `Calculate...` returns a workspace
  - `Correct...` applies the calculation to the input workspace
  - use http://www.mantidproject.org/Mantid_Standards#Naming
  - no length restriction
  - no abbreviations
- Remove unused algorithms

Mantid Libraries (current framework)

- mantid.io
  - all loading and saving
- mantid.math
  - matrix workspace math (also include `V3D` , `VMD` , ...)
  - `Plus` , `ExponentialCorrection` , `Rebin` , `Fit`
  - many algoritm names in this library will not contain a verb `Plus` , `Minus`
  - add aliases `Add = Plus` , `Subtract = Minus`
- mantid.math.axes
  - changing the axis of a matrix workspace (not the data), that is technique independent
  - `TransformX` (previously `ScaleX` , `ChangeBinOffset` , `ConvertAxisByFormula`), `GetMedianBinWidth` (former `MedianBinWidth`)
- mantid.math.events
  - deals with events (technique agnostic)
  - `FilterEvents` , `RebinByPulseTime`
- mantid.math.instrument (maybe mantid.instrument)
  - grouping, masking, etc
  - include `Instrument` , `Goniometer` objects
  - `GroupDetectors` , `MaskBankTubePixel` (currently `MaskBTP`), `SetGoniometer` , `MoveInstrumentComponent`
- mantid.math.multidimensional
  - technique agnostic multidimensional workspaces

    - `mantid.math.multidimensional.Rebin` (`BinMD` / `SliceMD`)
    - does not include `ConvertToMD`
- mantid.metadata
    - logs, title, but not history
    - `AddLog` (instead of `AddSampleLog`), `CorrectLogTimes`
- mantid.muons
    - muon related stuff
    - `CalculateAsymmetry` (instead of `AsymmetryCalc`)
- mantid.neutrons
    - things that are related to neutrons (time of flight), but not specific to a certain subfield (like diffraction)
    - `ConvertUnits` , `ConvertToMultiDimensionalWorkspace` (`ConvertToMD`),
    - `NormaliseByProtonCharge` (`NormaliseByCurrent`), `Correct3HeTubeEfficiency` (`He3TubeEfficiency`)

- mantid.neutrons.crystal
    - single crystal stuff. Will include `UnitCell` , `OrientedLattice` , `SymmetryOperation`
    - `SetUB` , `FindPeaksReciprocalSpace` (`FindPeaksMD`), `IndexPeaks`
- mantid.neutrons.diffraction
    - powder/amorphous diffraction stuff
    - `StripVanadiumPeaks` , `AlignAndFocusPowder`
- mantid.neutrons.inelastic
    - algorithms related to both direct and indirect inelastic spectroscopy
    - `GetIncidentEnergy` (`GetEi`), `CorrectKiKf` , `CalculateDynamicStructureFactor` (`SofQW`)
- mantid.neutrons.reactor
    - single wavelength algorithms
    - right now most are facility specific
- mantid.neutrons.reflectometry
    - `FindReflectometryLines`
- mantid.neutrons.sans
    - `CalculateEfficiency`

- mantid.constants
    - no algorithms here
    - physical constants
    - neutronic constants
- mantid.remote
    - `SubmitRemoteJob` , `AbortRemoteJob`
- mantid.simulations
    - deal with outside simulation programs (CASTEP, SASSENA, ...)
    - `CalculateInelasticScatteringFromAbInitioPhonon` (`Abins`)
- mantid.workspace
    - manipulate workspaces, history
    - should we move all workspace objects here?
    - `RenameWorkspace` , `GroupWorkspaces` , `CompareWorkspaces` , `AddCommentToHistory` (`Comment`)
- mantid.api
    - the current mantid.api (workspaces, validators, algorithm)

Facility Specific Libraries

- mantid.ess
- mantid.hfir
- mantid.ill
- mantid.ral (or mantid.isis)

- mantid.sns
- can add instrument or technique specific sublibraries
  - `mantid.sns.corelli.CrossCorelate`
  - `mantid.sns.inelastic.GetIncidentEnergy`

Other Changes

- Move things from mantid.kernel (mostly to mantid.math or mantid.api)
- Move things from mantid.geometry (mostly into mantid.math.instrument)

New names

- new names