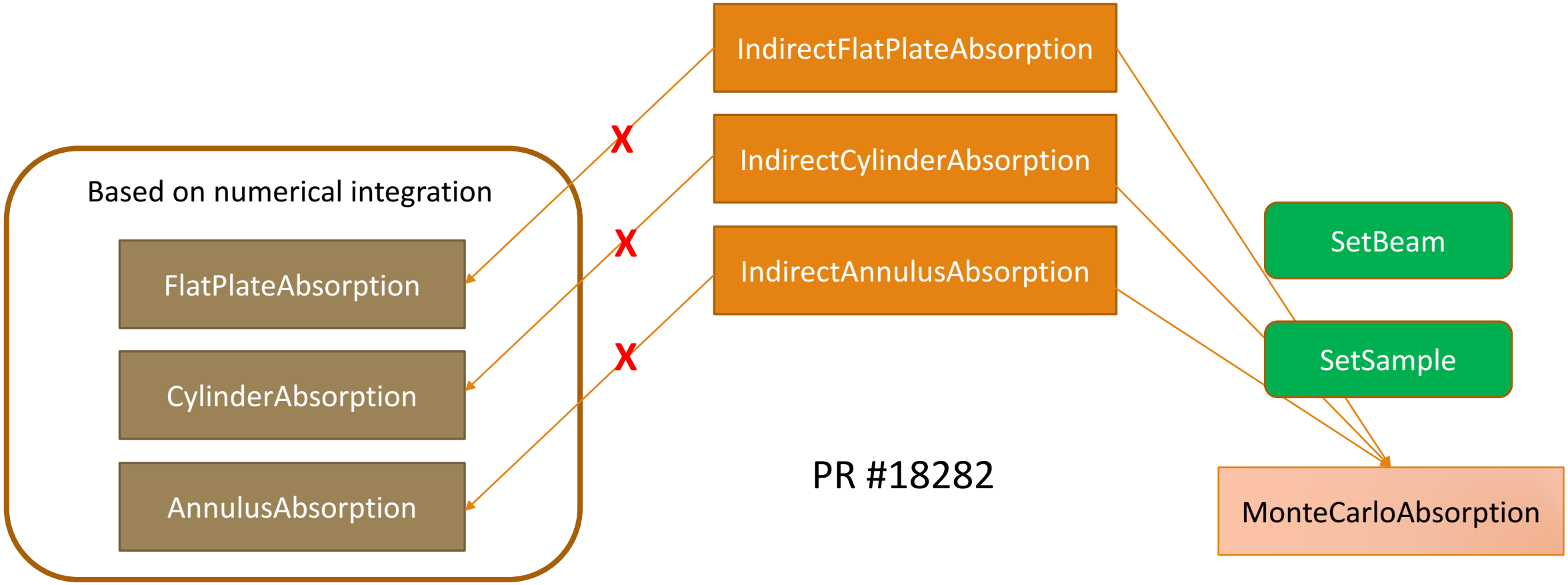
Indirect Reduction

GAGIK, 23.01.2017, BASTILLE WEEKLY

Status

- ✓ The new reduction branch is merged to master, will be in Release 3.9
- ❑ Currently working on Paalman Pings and Absorption corrections
- ❑ Right now they don’t work for fixed window scan data, because of the workspace axis unit requirement

Absorption Corrections



MonteCarloAbsorption

- Requires wavelength as workspace unit
- Computes several wavelength points(λ_{step}) to simulate, then interpolates for missing wavelength (linear, C-spline)
- Has 3 modes of operation, but the decision is automatized
  1. Elastic, $\lambda_1 = \lambda_2 = \lambda_{step}$
  2. Direct, $\lambda_1 = \lambda_{step}$, $\lambda_2 = \lambda_{fixed}$
  3. Indirect, $\lambda_1 = \lambda_{fixed}$, $\lambda_2 = \lambda_{step}$

For IN16B

- EFWS : we need elastic, but to be read from Efixed, without requirement of wavelength unit
- IFWS : same as EFWS, since the energy transfer is negligible wrt incident energy
- QENS : normally the same situation here, but possibility to take the energy transfer into account is needed

So need a new mode, EFixed : $\lambda_1 = \lambda_2 = \lambda_{fixed}$, with no requirement on unit

If the input workspace does not have a unit of wavelength neither anything convertible to it, EFixed mode will be assumed

Otherwise (e.g. for QENS) one could achieve identical behaviour with `NumberOfWavelengthPoints`=1

However in PaalmanPings, EMode = [Elastic,Direct,Indirect], is a user input, so 4th mode can be added explicitly

To Do

- ❑ Finalize and ship the PR by Louise
- ❑ Implement the automatic *EFixed* mode in **MonteCarloAbsorption** by relaxing unit check
- ❑ Add the option in **FlatPlatePaalmanPings** and **CylinderPaalmanPings** for *EFixed*
- ❑ See what needs to be adjusted in the GUI, as some unit conversions happen there!