POLYTECHNIQUE
MONTRÉAL

Quality assurance in Version5

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Outline

What is Version5?
Motivation for QA
A more consistent development model
Version5 roadmap
An issue-tracking card index

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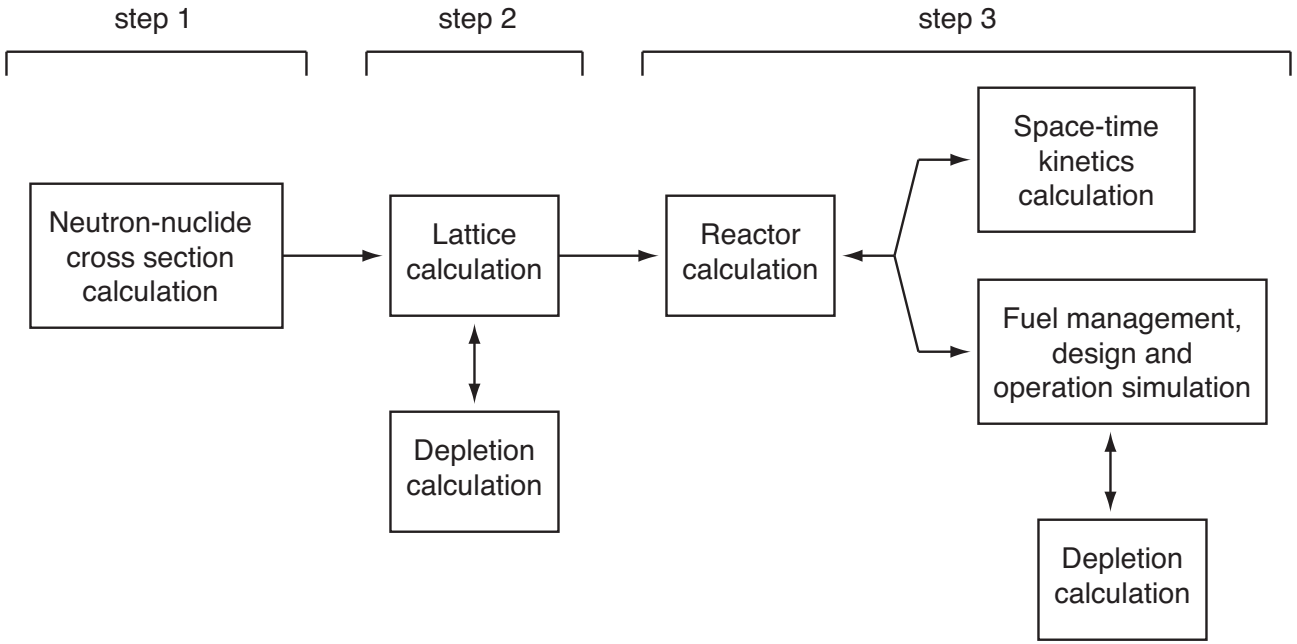
Version5 is a complete and consistent software solution in reactor physics, including



- Lattice calculation (DRAGON5)
- Full core calculations (TRIVAC5 and DONJON5)

Motivation for QA

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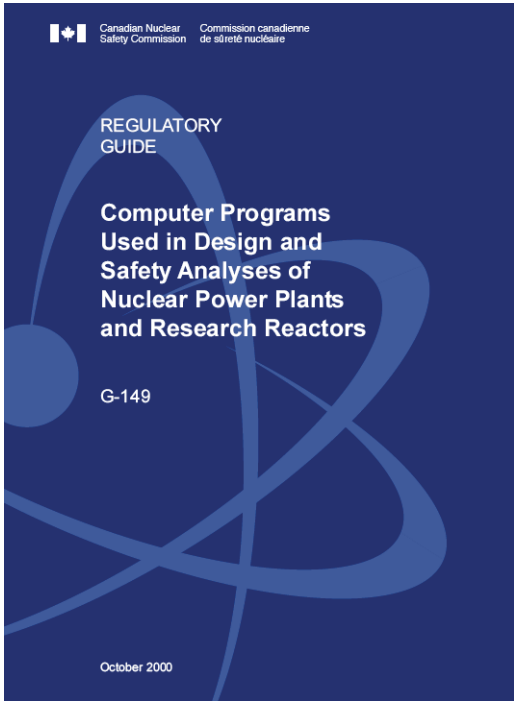
- Requirement for codes developed after October 2000 in Canada, as specified in CNSC–G–149:

  > Maintain a configuration management system to help ensure program integrity and to keep track of a program's versions and components.

- Experience with Apollo2 development (1996–2000)
  - QA of Apollo2 codebase
  - QA of computational schemes



A more consistent development model

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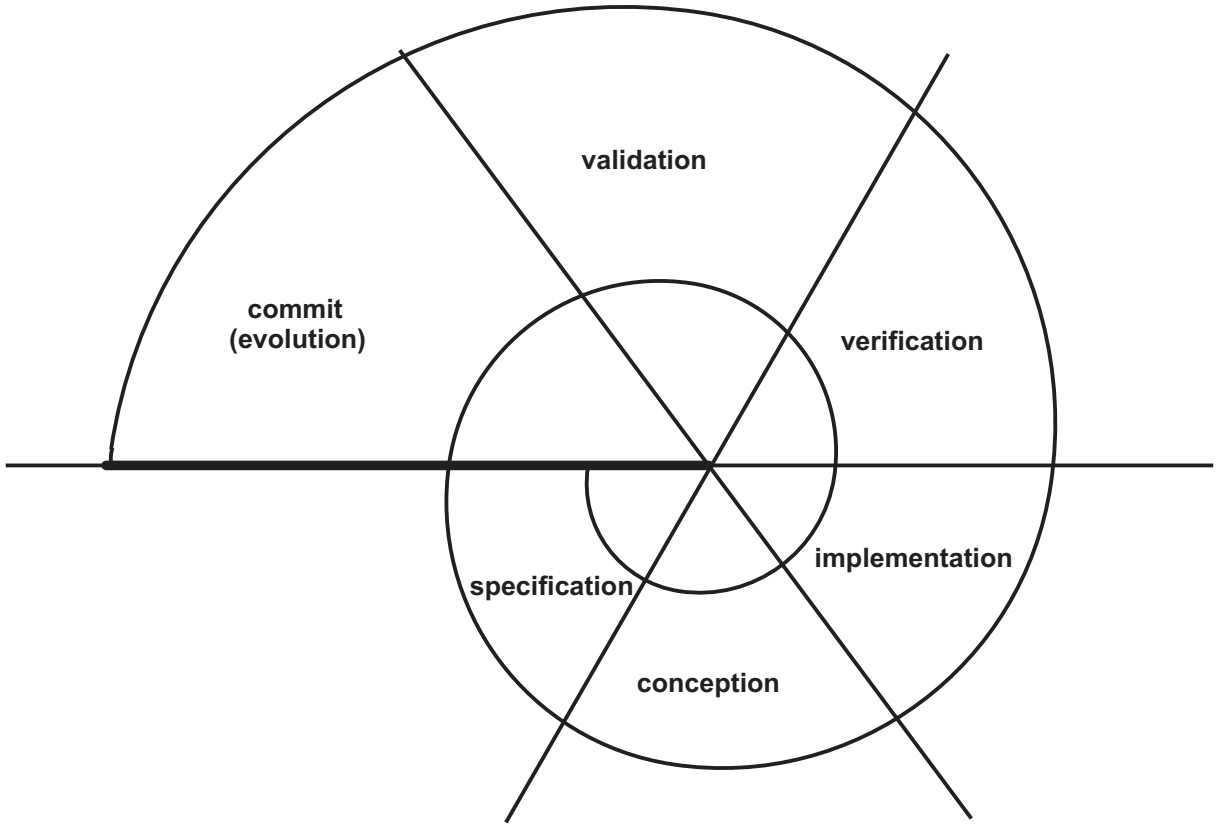

A more consistent development model

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- Version control of the project components
  - A single Subversion repository holds the complete project
  - The repository contains sources, configuration scripts, non-regression tests, LaTeX docs and issue-tracking info.
  - Export tgz archives of tagged versions are available for download
- Issue tracking and spiral development management
  - the issue-tracking data is kept in the Subversion repository
  - pre- and post-commit Python scripts are hooked in the repository to help issue-tracking
  - a web/CGI tool is available to all users for submitting issues
- Configuration management of the codes Dragon,Trivac and Donjon.
  - simple UNIX install scripts are used
  - PCs are supported through Cygwin

Version5 roadmap

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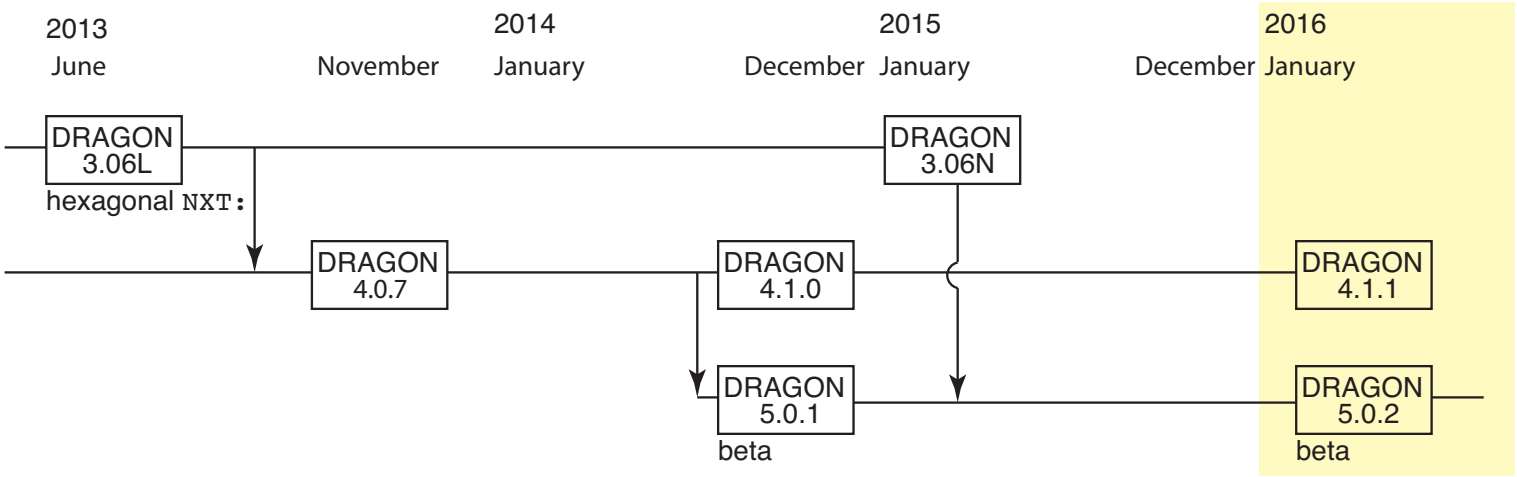

- Each cycle of the spiral is a development version identified by an issue number
- Version 5.0.1 is the initial commit
- Version 5.0.2 is the first tagged version
  - 46 cycles between 5.0.1 and 5.0.2

An issue-tracking card index

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```
Card-index: issue000041
-------------------------------------------------------------
On Jan 1, 2016, at 6:11 AM, Shantanab Banerjee <shantanab.banerjee@gmail.com> wrote:
I have removed self shielding indices for Boron in the one dimensional problem we previously
discussed (condensing in fuel region (region 1) to generate homogenized fuel XS), but now an
error is coming in ASM module. I have used mostly default inputs in that module. The error
persists even if use complete homozenization for the whole system.
"USE TRANSPORT CORRECTED CROSS-SECTIONS (ITRANC=   2 )
UNABLE TO CONVERGE(2)."
-------------------------------------------------------------
develop
Fri Jan  1 12:12:46 2016
subversion revision=453
issue000041: Correct the asymptotic calculation of PIJ in 1D slab geometry
M /trunk/Dragon/src/SYBRII.f
M /trunk/Dragon/src/SYBRIJ.f
-------------------------------------------------------------
```

Availability

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Available at `http://www.polymtl.ca/merlin/version5`.

The distribution available in Version 5.0.2 is including

- DRAGON Version5
- TRIVAC and DONJON Version5
- documentation

QA procedures report

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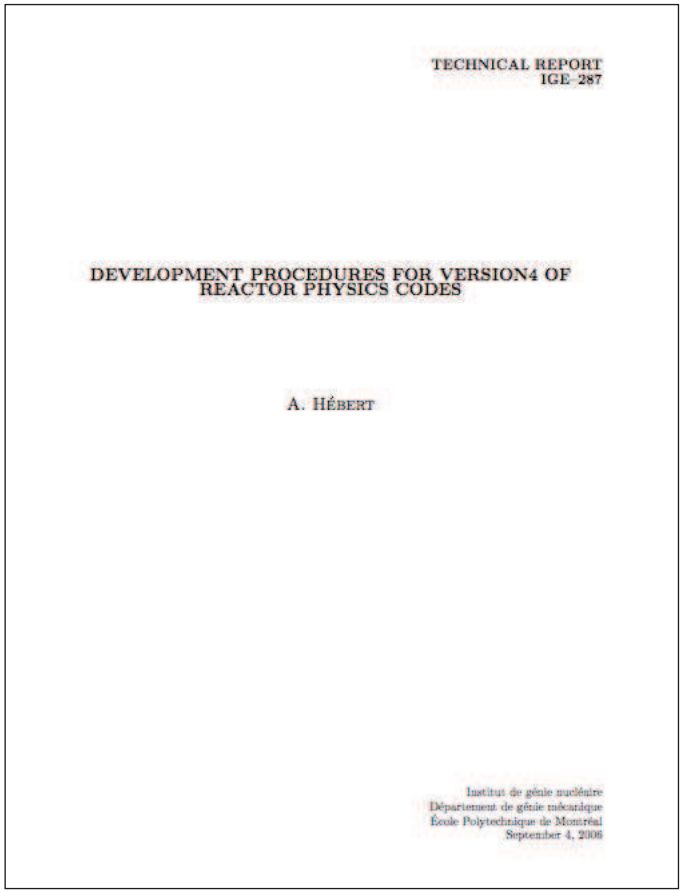
IGE–287 report is available, describing

- Version control of the project components
- Issue tracking and spiral development management
- Configuration management



TECHNICAL REPORT
IGE-287

DEVELOPMENT PROCEDURES FOR VERSION4 OF REACTOR PHYSICS CODES

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