**The Belle II Experiment**
An electron positron collider with asymmetric energies located in Japan to test the standard model with high precision.

- start in 2018, collect 50 ab$^{-1}$ until 2024
- record 4 x $10^{11}$ events, 60 PB of data

**Software Framework**
Software framework written from scratch using experience from Belle and other HEP experiments.
- core framework implemented in C++14 and including the boost libraries
- use ROOT 6 framework for serialization of event data, Geant4 for simulation
- Python 3 interface for configuration and high level program steering
- different algorithms (called modules) are executed sequentially for each event

**Analysis Concept**
For analysts we provide high level constructs to work in a candidate based analysis scheme
- text based cuts on "variables"
- basically no C++ for users

### Documentation Tools
Usually documentation is build automatically (doxygen) or completely manually (wiki style)

- Automatic systems
  - Often impose rigid structure
  - Written for one language, hard to extend

- Manual documentation
  - Large overhead
  - Prone to be outdated

### Migration from Doxygen
Existing code might have doxygen style documentation
- Sphinx has callback mechanism before emitting documentation
- Allows different documentation styles (Google/Numpy style docstrings)
- Custom callback to convert existing Doxygen docstrings as well

### Documentation of C++ Code
Currently our Sphinx documentation contains almost no C++. In the future we also plan to move the developer documentation to Sphinx.
- Sphinx has full support for C++ documentation including cross referencing
- Sphinx can utilize doxygen xml output via "Breathe" extension
- Classes could be directly documented using cling/libclang
- Combine Sphinx 6 doxygen, keep short, user friendly interface documentation in Sphinx and link to full listing in doxygen

**Belle II Documentation Effort using Sphinx**
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**Sphinx**
Python Documentation Generator