EIC Toy Model: what is it all about

- **A tool to model & generate EIC Central Detector "templates" in a way:**
  - the new geometries (models) can be generated "quickly" …
  - … and represented instantly in a WYSIWYG fashion
  - the sub-detector "container objects" are guaranteed to not overlap either with each other or with the IR vacuum chamber elements
  - technically they can be imported in GEANT frameworks in a consistent way and used as wrappers to the "real" sub-detectors
  - they can be exported in a CAD format to be used in the engineering design of the detector support structures and / or laying out services

- **Repository:** https://github.com/eic/EicToyModel
  - a pretty detailed README
  - example ROOT scripts
  - a standalone GEANT example
  - detailed API description
  - *Currently neither g4e nor fun4all examples available*

EIC Toy Model: what is it all about

Escalate & fun4all; migration process	**Physics simulations & engineering design**
Tracker, PID & Calorimetry detectors in GEANT	**Ideal detectors & services / support**
1-st & 2-d IR	**$\|\eta\|<4.5$ & reality**
EIC detector & greenfield solenoid design	**Space available for detectors & IR vacuum chamber**

- One can easily identify a number of places with a lack of sync at this early stage
- Some of them can seemingly be addressed in a more or less consistent way

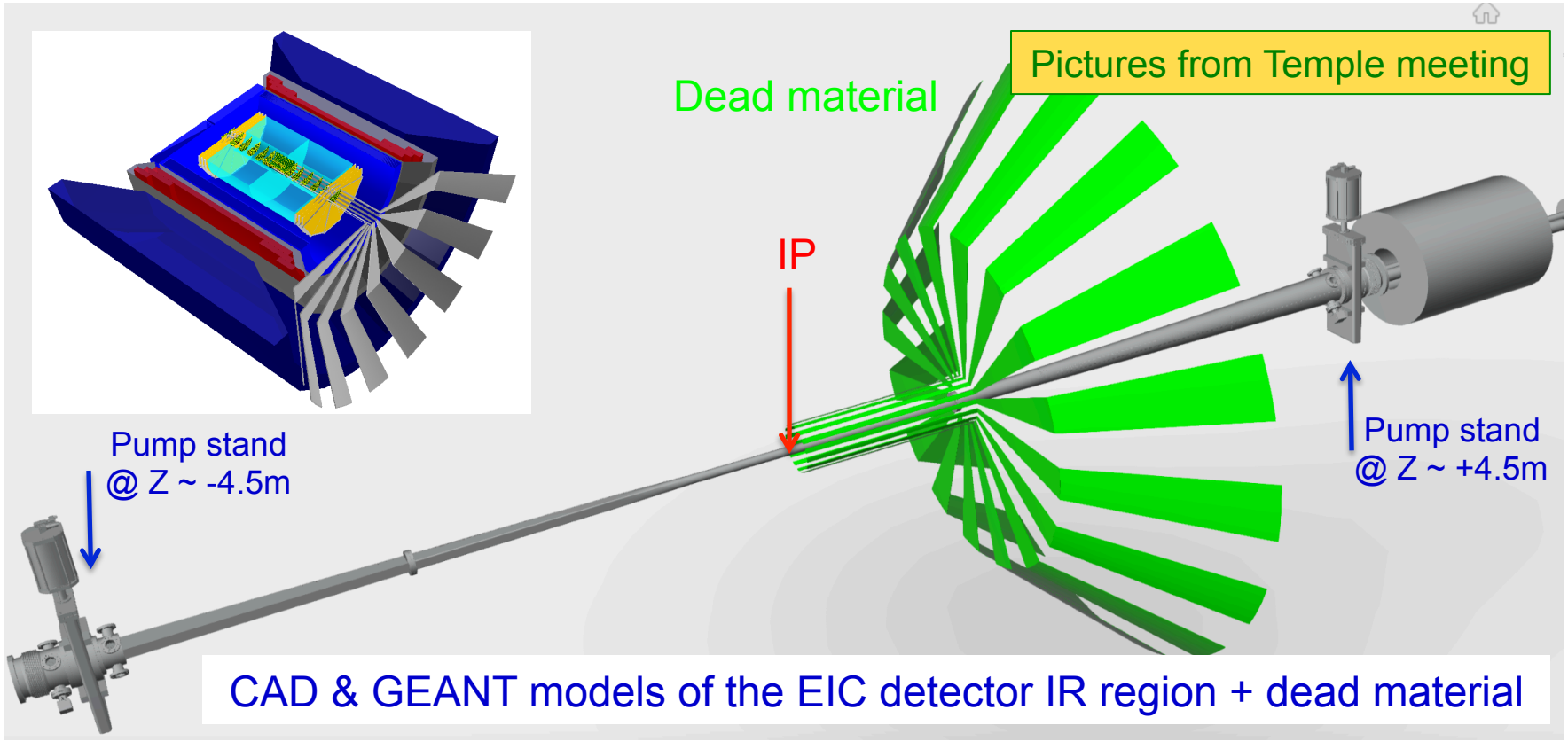
Recent progress and TODO list

- **Polyhedra export in CAD format implemented**
- **A better understanding of limitations in other ingredient codes:**
  - Visualization of boolean shapes in GEANT is as bad as in ROOT …
  - … and VecGeom does not look like a remedy either
- **Possible EicRoot geometry import: GDML or TGeo?**
  - VGM can not handle TGeo assembly import

- **Validation in the official YR frameworks is critically missing**
- **Services and dead material interface: no progress since Temple**

- **Cmake, ROOT versions, etc**

Services



- Barrel-to-endcap cracks (support, services):
  - Obviously affect the available space for the detectors
  - Should be configurable, accumulating services from / to “inner” detectors
  - No progress since Temple; *almost the first item on the TODO list*