Integrating Modeling Toolchain into High Field Magnet Monitoring and Control system.

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**HifiMagnet: a software tool Chain**

- 3D NL MultiPhysics
  - 70 Billions Elemen.
  - 1 To RAM
  - 512 Cores
  - 2 Hours CPU

**MS04SC: HPC Cloud Computing service**

- A Portal to access:
  - software catalogue (Hifimagnet),
  - data repository,
  - workflow management
- Pre/Post visualization of data (Salome)

**Use cases:**

- Cooling of HTS Nougat prototype (Jan. 2019) [Fri-Mo-Or27-04]
- Magnetic Levitation of liquid He

**14 Helices Insert in Operation (Mar. 2017) : Reproduce plateau (3D Model)**

- Assumption:
  - Flowrate = f(I, Ivar)
  - Uwater mean by channel
  - Montgomery correlation
- Iterate to get I:
  - Heat dissipated by channel
  - h(I) and Twater per channel

**14 Helices Insert (Jul. 2019) : Commissioning (Axi Model)**

- Field factor [T/A]:
  - Exp: 8.892
  - Num: 8.935
- Self/Mutual [mH]:
  - L = 2.318
  - M = 1.1696

**Transverse integration Ongoing work**