

CompF02 Theoretical Calculations and Simulation

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- **Six subtopics:**
 - 1. Event Generators**
 - 2. Accelerator Modelling**
 - 3. Detector Modelling**
 - 4. Theoretical calculations (Perturbative)**
 - 5. Theoretical calculations (Lattice Gauge Theory)**
 - 6. Cosmic simulations**
- **98 subscribers to mailing list**
 - **Live google doc minute taking**
- **Biweekly teleconference meetings on Fridays 3pm EST, O(50) participants**

- **Background of preexisting community papers (HSF, USQCD) in areas**
- **Varying degrees of activity depending on community**
 - **High degree of self organisation in accelerator/beam modelling**
<https://snowmass-compf2-accbeammodel.github.io>
 - **Event generators, Detector modelling appear to be self organising**
 - **Community Lol (Lattice) + multiple collaboration submissions**
 - **One CF topical phone call with perturbative community**
 - **Plan of record is a multiple Frontier community letter**
 - **Cosmic Frontier only really represented by HACCC structure formation to date**
 - **Have attempted to reach further but not no wider engagement**

Summary talks:

- **Event Generators: Hugh Gallagher (neutrino), Steve Mrenna (colliders)**
- **Accelerator modelling: Jean Luc Vay**
- **Detector modelling: Krzysztof Genser**
- **Theory (perturbative): Andreas von Manteuffel**
- **Theory (lattice) : Andreas Kronfeld**
- **Cosmic simulations: Salman Habib**

Most discussion organisational, but some common technical themes

- **Career paths**
- **Software development effort cost vs hardware cost**
- **Parallelisable vs non-parallelisable workloads**
- **(many) Accelerator programming models (CUDA, OpenMP target, SyCL)**
- **HPC sites vs. flexibility**
- **HTC vs HPC**