



# 4D Tracking White Paper

IF03 Meeting  
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# Introduction

- **4D Tracking White Paper for Snowmass in preparation**
  - LOI can be found here:  
[https://www.snowmass21.org/docs/files/summaries/IF/SNOWMASS21-IF3\\_IF7-131.pdf](https://www.snowmass21.org/docs/files/summaries/IF/SNOWMASS21-IF3_IF7-131.pdf)
  - The paper reviews:
    - state of the art and R&D for
      - use-cases and technologies at
        - e+e- and hadronic colliders

## 4-Dimensional Trackers

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# Paper Outline

- About 15 pages + references are already in place:

## 1. Introduction

1. Hadron colliders: HL-LHC and FCC-hh
2. e+ e- colliders: ILC, CLIC, C3
3. Muon Collider
4. Electron Ion Collider

## 2. Sensor technologies

1. Advanced LGAD designs
  1. AC-coupled LGADs
  2. Buried Layer LGADs
  3. Trench-insulated LGADs
  4. Double Sided LGADs for 5D Tracking
  5. Deep-Junction LGADs
  6. Thin LGADs
2. 3D
3. MAPS
4. Comparison of different technologies

## 3. Electronics

1. Current timing chips
2. FAST family of ASICs
3. SiGe amplifiers
4. Full digitization chip
5. Chips comparison

## 4. Layout

5. Key areas for future R&D
6. Summary

Current draft attached  
to the agenda!

# Thanks for your attention!



F. Cairo, From Conn(II)ecting the dots

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