

IF 7 LOIs to White Papers sorting

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Submissions Directed to IF07 topic as Primary

IF 7 LOI Summary September 15, 2020

PDF Reference

SNOWMASS21-IF7_IF0-073

SNOWMASS21-IF7_IF0_Frank_Krennrich-173

SNOWMASS21-IF7_IF1_Carl_Grace-109

SNOWMASS21-IF7_IF2-NF10_NF0_Analog_Photon_Processor-052

SNOWMASS21-IF7_IF3_Leo_Greiner-160

SNOWMASS21-IF7_IF4_Sandeep_Miryala-180

SNOWMASS21-IF7_IF4-132

SNOWMASS21-IF7_IF5_H.MULLER-101

SNOWMASS21-IF7_IF8-NF10_NF0_Jonathan_Asaadi-079

SNOWMASS21-IF7_IF8-NF10_NF0-UF3_UF0_Dan_Dwyer-171

SNOWMASS21-IF7_IF9-CF2_CF4_Austin_Minnich-117

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1 2 3 4 topic

X				Optical Link HS (xtreme environment)
		X		Quality Control Cryogenic Detector FE Readout
	X			Low Temp SiGe heterogenous bipolar
			X	Analog Processor with parametric feature Extraction
	X			BNL & LBL MAPs
	X			AI ASICs for front end processing
	X			ML and AI data inferential reduction
X				ART for Scaleable Readout System
			X	Pixelated LAR_TPC Readout Technique
			X	Pixelated LAR_TPC Readout Technique
X				Quantum-limited transist uwave amplifiers

Technology Specific Near Term Continued Development

Technology Specific Long Term Investigation

Quality Control technique for Extreme Environments

Existing F E Electronics Tech to implement novel detector readout

Totals

3 4 1 2

IF07 second choice

- IF3-IF7

- Time of Flight Detector for circular electron positron collider
- PRECISION TIMING DETECTORS FOR FUTURE COLLIDERS
- Large area CMOS monolithic active pixel sensors for future colliders
- 28nm CMOS for 4D Tracker Readout Chips
- 4-Dimensional Trackers

- IF4-IF7

- FPGA Based Artificial Intelligence Inference In Triggered Detectors
- Radiation-hard high-speed fiber-optical data links for HEP experiments
- Self-driving data trigger, filtering, and acquisition systems for high-throughput physics facilities
- Real-time adaptive deep-learning with embedded systems for discovery science

From LOIs to White Papers

- Data handling
 - Addressable Readout Techniques for Scalable Readout System
 - Self-driving data trigger, filtering, and acquisition systems for high-throughput physics facilities
 - Real-time adaptive deep-learning with embedded systems for discovery science
 - FPGA Based Artificial Intelligence Inference In Triggered Detectors
- AI/ML
 - Self-driving data trigger, filtering, and acquisition systems for high-throughput physics facilities
 - Real-time adaptive deep-learning with embedded systems for discovery science
 - FPGA Based Artificial Intelligence Inference In Triggered Detectors
 - AI ASICs for front end processing focus on Optimal Implementation
 - ML and AI data inferential reduction
- Pixelated Liquid Noble readouts
 - Pixelated LAR_TPC ionization current Reconstruction Technique
 - Pixelated LAR_TPC Readout Establish R&D mechanisms
- Monolithic sensor readout
 - Large area CMOS monolithic active pixel sensors for future colliders
 - 28nm CMOS for 4D Tracker Readout Chips
 - 4-Dimensional Trackers
 - BNL & LBL MAPs Tracker development

From LOIs to White Papers

- Calorimetry
 - High precision, high dynamic range readout
- Optical links
 - Optical Link HS (xtreme radiation environment)
 - Radiation-hard high-speed fiber-optical data links for HEP experiments
- Timing
 - Time of Flight Detector for circular electron positron collider
 - PRECISION TIMING DETECTORS FOR FUTURE COLLIDERS
- Deep cryogenic readout
 - 4K and below Cryo SiGe heterogenous bipolar
- Design for reliability analytical techniques
 - Quality Control Cryogenic Detector FE Readout
- Photodetector readout
 - Analog Processor with parametric feature Extraction