IAS Program on High Energy Physics 2022

Mini-workshop on Accelerator Physics: Key Beam Physics and Technologies Issues for Colliders

(HKT | GMT +8) January 13-14, 2022 at 15:00 - 18:50 & 20:00 - 23:10

Format of Talk: 20-minute presentation

		January 13, 2022 (Thursday)			January 14, 2022 (Friday)	
		Chair: Eugene LEVICHEV (Budker Institute of Nuclear Physics (BINP))			Chair: Jie GAO (Institute of High Energy Physics, Chinese Academy of Sciences)	
		Title	Speaker		Title	Speaker
Afternoon	15:00 - 15:20	Beam Physics Frontier Problems	Frank ZIMMERMANN (CERN)	15:00 - 15:20	CEPC Mechanics Design	Haijing WANG (Institute of High Energy Physics, Chinese Academy of Sciences)
	15:20 - 15:40	Super-KEKB: What Have We Learned	Makoto TOBIYAMA (High Energy Accelerator Research Organization (KEK))	15:20 - 15:40	CEPC Injection/ Extration and Timing	Xiaohao CUI (Institute of High Energy Physics, Chinese Academy of Sciences)
	15:40 - 16:00	CEPC Accelerator Status towards TDR	Jie GAO (Institute of High Energy Physics, Chinese Academy of Sciences)	15:40 - 16:00	CEPC Collective Instabilities Studies	Na WANG (Institute of High Energy Physics, Chinese Academy of Sciences)
	16:00 - 16:20	CEPC Collider Lattice Optimization Design	Yiwei WANG (Institute of High Energy Physics, Chinese Academy of Sciences)	16:00 - 16:20	On Polarization and Energy Calibration in e+e- Colliders	Sergei NIKITIN (Budker Institute of Nuclear Physics (BINP))
	16:20 - 16:40	CW Beam Physics Analysis	Demin ZHOU (High Energy Accelerator Research Organization (KEK))	16:20 - 16:40	CEPC Polarization	Zhe DUAN (institute of High Energy Physics, Chinese Academy of Sciences)
	16:40 - 16:50	Break		16:40 - 16:50	Break	
		Chair: Yuhui LI (Institute of High Energy Physics, Chinese Academy of Sciences)			Chair: Winfried DECKING (Deutsches Elektronen-Synchrotron (DESY))	
		Title	Speaker		Title	Speaker
	16:50 - 17:10	Beam-beam Effects in Colliders – An Overview	Tatiana PIELONI (École polytechnique fédérale de Lausanne (EPFL))	16:50 - 17:10	CEPC Collider Ring and Booster Magnets R&D	Mei YANG (Institute of High Energy Physics, Chinese Academy of Sciences)
	17:10 - 17:30	VEPP-2000 Experience with Round Beams	Dmitry B. SHWARTZ (Budker Institute of Nuclear Physics (BINP))	17:10 - 17:30	CEPC Vacuum System R&D	Yongsheng MA (Institute of High Energy Physics, Chinese Academy of Sciences)
	17:30 - 17:50	CEPC Beam-beam Effects Studies	Yuan ZHANG (Institute of High Energy Physics, Chinese Academy of Sciences)	17:30 - 17:50	SuperKEKB Control System and Operation	Kaji HIROSHI (High Energy Accelerator Research Organization (KEK))
	17:50 - 18:10	SuperKEKB RF Gun Injector Design and Operation	Rui ZHANG (High Energy Accelerator Research Organization (KEK))	17:50 - 18:10	CEPC Control System	Gang LI (Institute of High Energy Physics, Chinese Academy of Sciences)
	18:10 - 18:30	CEPC Linac Injector Design	Cai MENG (Institute of High Energy Physics, Chinese Academy of Sciences)	18:10 - 18:30	CEPC Booster+damping Ring Design	Dou WANG (Institute of High Energy Physics, Chinese Academy of Sciences)
	18:30 - 18:50	CEPC RF Gun Design	Tianmu XIN (Institute of High Energy Physics, Chinese Academy of Sciences)	18:30 - 18:50	CEPC Alignment and Installation	Xiaolong WANG (Institute of High Energy Physics, Chinese Academy of Sciences)
Evening		Chair: Frank ZIMMERMANN (CERN)			Chair: Makoto TOBIYAMA (High Energy Accelerator Research Organization (KEK))	
		Title	Speaker		Title	Speaker
	20:00 - 20:20	FCC-ee Design	Jacqueline KEINTZEL (CERN)	20:00 - 20:20	Muon Colliders - Challenges	Daniel SCHULTE (CERN)
	20:20 - 20:40	SuperKEKB Collimator System	Takuya ISHIBASHI (High Energy Accelerator Research Organization (KEK))	20:20 - 20:40	SppC Study Status	Jingyu TANG (Institute of High Energy Physics, Chinese Academy of Sciences)
	20:40 - 21:00	IR Modelling for FCC-ee	Leon VAN RIESEN-HAUPT (CERN)	20:40 - 21:00	CEPC Cryogenic System R&D	Rui GE (Institute of High Energy Physics, Chinese Academy of Sciences)
	21:00 - 21:20	CEPC MDI issues	Sha BAI (Institute of High Energy Physics, Chinese Academy of Sciences)	21:00 - 21:20	CEPC Instrumentation R&D	Yanfeng SUI (Institute of High Energy Physics, Chinese Academy of Sciences)
	21:20 - 21:40	CEPC SC Quadrupole Magnet R&D	Yingshun ZHU (Institute of High Energy Physics, Chinese Academy of Sciences)	21:20 - 21:40	CEPC Plasma Injector Studies	Dazhang LI (Institute of High Energy Physics, Chinese Academy of Sciences)
	21:40 - 21:50	Break		21:40 - 21:50	Break	
		Chair: Jie GAO (Institute of High Energy Physics, Chinese Academy of Sciences)			Chair: Vladimir SHILTSEV (Fermi National Accelerator Laboratory)	
		Title	Speaker		Title	Speaker
	21:50 - 22:10	CEPC RF System and R&D	Jiyuan ZHAI (Institute of High Energy Physics, Chinese Academy of Sciences)	21:50 - 22:10	SppC High Field SC Magnet R&D	Qingjin XU (Institute of High Energy Physics, Chinese Academy of Sciences)
	22:10 - 22:30	650MHz High Power High Efficiency Klystron	Zusheng ZHOU (Institute of High Energy Physics, Chinese Academy of Sciences)	22:10 - 22:30	Superconducting Magnet Technology Development	Stephen GOURLAY (PNTZ Consulting Group, LLC)
	22:30 - 22:50	Global Planning for Colliders - EPPS, Snowmass, China, Russia	Vladimir SHILTSEV (Fermi National Accelerator Laboratory)	22:30 - 22:50	Coherent Electron Cooling - Promise and Challenges	Gennady STUPAKOV (SLAC National Accelerator Laboratory)
	22:50 - 23:10	C^3 Linear Colliders - A New Approach	Emilio A. NANNI (SLAC National Accelerator Laboratory, Stanford University)	22:50 - 23:10	Plasma Colliders	Carl SCHROEDER (Lawrence Berkeley National Laboratory)

Version as of Jan 11, 2022 at 21:57

IAS Program on High Energy Physics 2022

Mini-workshop on Experiment/ Detector: Innovation in HEP Detectors and Computing

(HKT | GMT +8) January 13-14, 2022 at 15:00 - 18:10/ 18:05 & 20:00/ 19:55 - 24:00/ 23:10

Format of Talk: 30-minute presentation + 15-minute Q&A session (The length of each talk is different. Please kindly note.)**

		January 13, 2022 (Thursday)			January 14, 2022 (Friday)	
		Theme: Innovative Ideas in HEP Detectors			Theme: Innovative Ideas in HEP Computing	
		Chairs: Franco BEDESCHI (The Italian National Institute of Nuclear Physics (INFN) - Pisa); Joao GUIMARAES DA COSTA (Institute of High Energy Physics, Chinese Academy of Sciences)			Chairs: Paolo GIACOMELLI (The Italian National Institute of Nuclear Physics (INFN) - Bologna); Weidong LI (Institute of High Energy Physics, Chinese Academy of Sciences)	
		Title	**Speaker**		**Title**	**Speaker**
After-noon	**15:00 - 15:05**	Opening Remarks	Joao GUIMARAES DA COSTA (Institute of High Energy Physics, Chinese Academy of Sciences)	**15:00 - 15:45**	Opticks : Innovation in Optical Photon Simulation via State-of-the-art GPU Ray Tracing from NVIDIA® OptiX™	Simon BLYTH (Institute of High Energy Physics, Chinese Academy of Sciences)
	15:05 - 15:50	Blue Sky Research	Peter KRIZAN (The Jožef Stefan Institute)	**15:45 - 16:30**	Key4HEP: Common Software for Future Experiments	Benedikt HEGNER (CERN)
	15:50 - 16:30	Highlights on Silicon Sensor Developments	Phil ALLPORT (University of Birmingham)	**16:30 - 16:40**	**Break**	
	16:30 - 16:40	**Break**				
		Title	**Speaker**		**Title**	**Speaker**
	16:40 - 17:20	Next Generation Vertex Detectors Based on Bent CMOS Sensors Wafers	Magnus MAGER (CERN)	**16:40 - 17:25**	Tracking with A Common Tracking Software (ACTS)	Xiaocong AI (Deutsches Elektronen-Synchrotron (DESY))
	17:20 - 18:00	Semiconductor Detectors for 4D Tracking	Gregor KRAMBERGER (University of Ljubljana)	**17:25 - 18:05**	The CERN Quantum Technology Initiative	Sofia VALLECORSA (CERN)
		Title	**Speaker**		**Title**	**Speaker**
	19:50 - 20:30	Pixelated Time Projection Chamber Tracker Detector Technology	Peter KLUIT (National Institute for Subatomic Physics (NIKHEF))	**19:55 - 20:25**	Application of Quantum Machine Learning to High Energy Physics Data Analysis	Chen ZHOU (Peking University)
	20:30 - 21:10	Precision Timing in Calorimetry	Imad LAKTINEH (Centre National de la Recherche Scientifique)	**20:25 - 20:55**	Application of Quantum Machine Learning on PID at BESIII	Teng LI (Shandong University)
Evening	**21:10 - 21:50**	Digital SiPM and DR Calorimetry	Romualdo SANTORO (Insubria University and The Italian National Institute of Nuclear Physics (INFN) - Milano)	**20:55 - 21:40**	Cluster Counting	Francesco GRANCAGNOLO (The Italian National Institute of Nuclear Physics (INFN) - Lecce)
	21:50 - 22:00	**Break**		**21:40 - 21:50**	**Break**	
		Title	**Speaker**		**Title**	**Speaker**
	22:00 - 22:40	Scintillating Glass Hadronic Calorimeter	Yong LIU (Institute of High Energy Physics, Chinese Academy of Sciences)	**21:50 - 22:30**	Application of AI Techniques to Data Analysis and Physical Interpretation of the Data	Tilman PLEHN (Heidelberg University)
	22:40 - 23:20	Fast Readout Electronics	Angelo RIVETTI (The Italian National Institute of Nuclear Physics (INFN) - Torino)	**22:30 - 23:10**	Application of Machine Learning to Event Reconstruction and Analysis	Benjamin NACHMAN (Lawrence Berkeley National Laboratory)

Version as of Jan 11, 2022 at 11:09

IAS Program on High Energy Physics 2022

Mini-workshop on Theory: Searching for New Physics at Various Energy Scales

(HKT | GMT +8) January 13-14, 2022 at 09:00 - 12:10 & 15:00 - 18:10

Format of Talk: 25-minute presentation + 5-minute Q&A

		January 13, 2022 (Thursday)			January 14, 2022 (Friday)	
		Theme: Ultra-heavy DM			Theme: Sub-GeV/ Gev/ Tev DM	
		Chair: Yue ZHAO (The University of Utah)			Chair: Ke FANG (University of Wisconsin-Madison)	
		Title	Speaker		Title	Speaker
Morning	08:55 - 09:00	Opening Remarks	Tao LIU (The Hong Kong University of Science and Technology)			
	09:00 - 09:30	Dark Matter from Primordial Black Holes	Pearl SANDICK (The Univeristy of Utah)	09:00 - 09:30	Direct Detection of Sub-GeV Dark Matter	Tongyan LIN (University of California, San Diego)
	09:30 - 10:00	Did LIGO Detect Dark Matter? An Update.	Simeon BIRD (University of California, Riverside)	09:30 - 10:00	Indirect Detection limits on Minimal Electroweak Dark Matter	Matthew BAUMGART (Arizona State University)
	10:00 - 10:30	Primordial Black Holes as Dark Matter in the View of LIGO/Virgo Observations	Sébastien CLESSE (Free University of Brussels (ULB))	10:00 - 10:30	Neutrino Astronomy at High Energies	Qinrui LIU (Queen's University)
	10:30 - 10:40	Break		10:30 - 10:40	Break	
		Theme: Ultra-light DM			Theme: Sub-GeV/ Gev/ Tev DM	
		Chair: Tao LIU (The Hong Kong University of Science and Technology)			Chair: Ke FANG (University of Wisconsin-Madison)	
		Title	Speaker		Title	Speaker
	10:40 - 11:10	The Cosmic Axion Background	Jeff DROR (University of California, Santa Cruz)	10:40 - 11:10	Ultra-diffuse Galaxies and Their Complications for Testing Dark Matter Theories	Hai-bo YU (University of California, Riverside)
	11:10 - 11:40	Determining the Existence of Primordial Black Holes and Ultralight Dark Matter Using Ravitational-wave Detectors	Andrew MILLER (Université catholique de Louvain)	11:10 - 11:40	Searching for Ultra-light Bosons in Stellar Tidal Disruption Events	Daniel EGANA-UGRINOVIC (Perimeter Institute for Theoretical Physics)
	11:40 - 12:10	Axi-Higgs Cosmology	Henry TYE (The Hong Kong University of Science and Technology)	11:40 - 12:10	Detecting High-Frequency Gravitational Waves with Microwave Cavities	Jan SCHÜTTE-ENGEL (University of Illinois)
		Theme: Ultra-light DM			Theme: Sub-GeV/ Gev/ Tev DM	
		Chair: Yue ZHAO (The University of Utah)			Chair: Ke FANG (University of Wisconsin-Madison)	
		Title	Speaker		Title	Speaker
After-noon	15:00 - 15:30	Gravitational Wave Detection between NANOGRAV and LISA	Surjeet RAJENDRAN (The Johns Hopkins University)	15:00 - 15:30	TeV Halos: A New Class of TeV Sources Powered by Pulsars	Timothy LINDEN (Stockholm University)
	15:30 - 16:00	Pulsar Polarization Arrays	Jing REN (Institute of High Energy Physics, Chinese Academy of Sciences)	15:30 - 16:00	Recent Developments in the Very-high-energy Gamma-ray Astronomy	Hao ZHOU (Shanghai Jiao Tong University)
	16:00 - 16:30	Solar Reflection of Dark Matter	Haipeng AN (Tsinghua University)	16:00 - 16:30	Multi-messenger Searches for New Physics	Daniele GAGGERO (Instituto de Física Corpuscular (IFIC) UV-CSIC)
	16:30 - 16:40	Break		16:30 - 16:40	Break	
		Theme: Ultra-light DM			Theme: Sub-GeV/ Gev/ Tev DM	
		Chair: Yue ZHAO (The University of Utah)			Chair: Tao LIU (The Hong Kong University of Science and Technology)	
		Title	Speaker		Title	Speaker
	16:40 - 17:10	Dark Photon Dark Matter Searches at LIGO	Huaike GUO (The University of Utah)	16:40 - 17:10	Super Heavy Dark Matter	Eric KUFLIK (The Hebrew University of Jerusalem)
	17:10 - 17:40	Search for Ultralight Dark Matter and Cosmological Phase Transition with Parkes Pulsar Timing Array	Qiang YUAN (Purple Mountain Observatory, Chinese Academy of Sciences)	17:10 - 17:40	Searching for Dark Matter with High-energy Neutrinos	Kenny C. Y. NG (The Chinese University of Hong Kong)
	17:40 - 18:10	Heavy Sterile Neutrinos: From Cosmology to Experiment	Marco DREWES (Université catholique de Louvain)	17:40 - 18:10	Cosmic Ray Boosted Dark Matter for Overcoming the Direct Detection Threshold	Shao-Feng GE (Tsung-Dao Lee Institute, Shanghai Jiao Tong University)

Version as of Jan 12, 2022 at 16:36

IAS Program on High Energy Physics 2022

Conference

(HKT | GMT +8) January 17 - 19, 2022 at 16:30 - 18:00 & 20:00 - 23:10

Format of Talk: 40-min Presentation

		January 17, 2021 (Monday)			January 18, 2021 (Tuesday)			January 19, 2021 (Wednesday)	
After-noon		***No session in the afternoon***			**Chair: Kirill PROKOFIEV (The Hong Kong University of Science and Technology)**			***No session in the afternoon***	
					Title	**Speaker**			
				16:30 - 17:10	ILC Status	Tatsuya NAKADA (École Polytechnique Fédérale de Lausanne (EPFL))			
				17:10 - 17:50	CLIC Status	Steinar STAPNES (CERN)			
				17:50 - 18:00	Discussion				
Evening	**19:50 - 20:00**	**Welcoming Remarks** Andrew G. COHEN (The Hong Kong University of Science and Technology) *(IAS Director, Acting Dean of Science and Lam Woo Foundation Professor)*							
		Chair: Jie GAO (Institute of High Energy Physics, Chinese Academy of Sciences)			**Chair: Kam-Biu LUK (The University of California, Berkeley and The Hong Kong University of Science and Technology) *(IAS Paul C W Chu Professor)***			**Chair: Yue ZHAO (The University of Utah)**	
		Title	**Speaker**		**Title**	**Speaker**		**Title**	**Speaker**
	20:00 - 20:40	CEPC Status	Xinchou LOU (Institute of High Energy Physics, Chinese Academy of Sciences)	**20:00 - 20:40**	Overview on (future) DM Direct Detection	Jianglai LIU (Shanghai Jiao Tong University)	**20:00 - 20:40**	Overview on the GWs Detections	Keith RILES (University of Michigan)
	20:40 - 21:20	FCC Status	Frank ZIMMERMANN (CERN)	**20:40 - 21:20**	The SENSEI Experiment: Latest Results and Prospects for Sub-GeV Dark Matter Searches	Ana Martina BOTTI (Fermi National Accelerator Laboratory)	**20:40 - 21:20**	Multi-messenger Astronomy: An Overview for Particle Physicists	John F. BEACOM (Ohio State University)
	21:20 - 21:30	Discussion		**21:20 - 21:30**	Discussion		**21:20 - 21:30**	Discussion	
	21:30 - 21:40	**Break**		**21:30 - 21:40**	**Break**		**21:30 - 21:40**	**Break**	
		Chair: Frank ZIMMERMANN (CERN)			**Chair: Joao GUIMARAES DA COSTA (Institute of High Energy Physics, Chinese Academy of Sciences)**			**Chair: Tao LIU (The Hong Kong University of Science and Technology)**	
		Title	**Speaker**		**Title**	**Speaker**		**Title**	**Speaker**
	21:40 - 22:20	Storage Rings and Gravitational Waves	Katsunobu OIDE (High Energy Accelerator Research Organization (KEK))	**21:40 - 22:20**	Recent progress on Physics Opportunities at e-e+ Colliders	Liantao WANG (The University of Chicago)	**21:40 - 22:20**	Snowmass Status	Tao HAN (University of Pittsburgh)
	22:20 - 23:00	Long-lived Particles at (Future) Colliders	Jonathan Lee FENG (University of California, Irvine)	**22:20 - 23:00**	Recent progress on Physics Opportunities at e-e+ Colliders (Flavor Physics)	Lingfeng LI (Brown University)	**22:20 - 23:00**	Closing Talk	Kathryn M. ZUREK (California Institute of Technology)
	23:00 - 23:10	Discussion		**23:00 - 23:10**	Discussion		**23:00 - 23:10**	Discussion	
							23:10 - 24:10	**Panel Discussion** Chair: Tao LIU (The Hong Kong University of Science and Technology) Panel Members: - Tao HAN (University of Pittsburgh) - Tatsuya NAKADA (École Polytechnique Fédérale de Lausanne (EPFL)) - Emilio A. NANNI (SLAC National Accelerator Laboratory, Stanford University) - Gavin SALAM (University of Oxford) - Steinar STAPNES (VERN) - Yifang WANG (Institute of High Energy Physics, Chinese Academy of Sciences)	
							24:10 - 24:20	**Closing Remarks** Tao LIU (The Hong Kong University of Science and Technology)	

Version as of Jan 17, 2022 at 15:40