



# Quantum Observables for Collider Physics

## Monday, 6 November 2023

**Sessions: Afternoon - A (16:30 - 18:30)**

time	[id] title	presenter
16:30	[7] Loopholes for Bell-Inequalities: what about colliders?	FABBRICHESI, Marco
17:05	[8] Entanglement suppression, enhanced symmetries and SM-like Higgs	LOW, Ian
17:40	[9] Probing the limits of quantum theory with quantum information at subnuclear scales	ECKSTEIN, Michal

# Tuesday, 7 November 2023

## Sessions: Morning - A (09:00 - 10:30)

time	[id] title	presenter
09:30	[11] Spin correlation and entanglement with the ATLAS experiment	HOWARTH, James William

## Sessions: Afternoon - A (14:00 - 15:30)

time	[id] title	presenter
14:00	[13] When the Machine Chimes the Bell: Entanglement and Bell Inequalities with Boosted tt	GONÇALVES, Dorival
14:30	[14] Quantum SMEFT tomography: top quark pair production at the LHC	MANTANI, Luca
15:00	[15] Quantum entanglement and top spin correlations in SMEFT at higher orders	SEVERI, Claudio

# Wednesday, 8 November 2023

## Sessions: Morning - A (10:45 - 12:15)

time	[id] title	presenter
10:45	[16] Isolating semi-leptonic $H \rightarrow WW\ell\ell$ decays for Bell inequality tests	MAURIN, Theo
11:15	[17] Testing entanglement and Bell inequalities in $H \rightarrow ZZ$	MORENO, Jesús
11:45	[18] Exploring Bell inequalities and quantum entanglement in vector boson scattering	MORALES, R. A.

## Sessions: Afternoon - A (14:00 - 16:00)

time	[id] title	presenter
14:00	[19] Entanglement and Bell inequalities violation in $H \rightarrow ZZ$ with anomalous coupling	BERNAL GONZÁLEZ, Alexander
14:30	[20] Stringent bounds on HWW and HZZ anomalous couplings with quantum tomography at the LHC	MARZOLA, Luca
15:00	[21] Probing new physics through entanglement in diboson production	MADGE, Eric

# Thursday, 9 November 2023

## Sessions: Morning - A (09:00 - 10:30)

time	[id] title	presenter
09:00	[22] Quantum information and CP measurement in $H \rightarrow \tau^+\tau^-$ at future lepton colliders	ALTAKACH, Mohammad LAMBA, Priyanka
09:30	[23] Entanglement and entropy in multipartite systems: a useful approach	CASAS, J. A.
10:00	[24] Three-body Entanglement in Particle Decays	SAKURAI, Kazuki

## Sessions: Afternoon - A (14:00 - 16:00)

time	[id] title	presenter
14:00	[25] Searches for Quantum Decoherence at Belle and Belle II	MOSER, Hans-Guenther
14:45	[26] Violation of Bell inequalities with taus at Belle II	VEELKEN, Christian
15:15	[27] Bell inequality is violated in $B^0 \rightarrow J/\psi K^0(892)$ decays	GABRIELLI, Emidio

# Friday, 10 November 2023

## Sessions: Morning - A (09:00 - 10:30)

time	[id] title	presenter
09:00	[28] Top-Antitop Reconstruction	RAVINA, Baptiste
09:30	[29] Unfolding Methods in Particle Physics for Quantum Information Observables	PINAMONTI, Michele
10:00	[30] Challenges in modelling $t\bar{t}$ spin correlations	VRONIDOU, Eleni