





Vortex states in nuclear and particle physics

School of Physics and Astronomy, Sun Yat-sen University April 24–28, 2024 • Zhuhai, Guangdong, China









School of Physics and Astronomy @ Sun Yat-sen University

80+ professors and associate professors

Research centers:

- Tianqin project center: future space-borne gravitational wave observatory to be launched in 2030-2035. Precision optics in space, lunar ranging facility.
- Department of astronomy: galactic cosmology, large-scale structure, stellar science, astronomical equipment development
- Department of physics
 - Theoretical physics Division
 - Quantum Engineering and Precision Measurement Division
 - Quantum Information and control Division



April 25, Thu

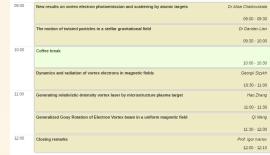
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00:00	Welcome address	Prof. Igor Ivanov
		09:00 - 09:10
	Electron Waves Carrying Orbital Angular Momentum: a historical overview of the early work	Prof. Franco Nori
		09:10 - 09:50
10:00	Vortex beams at high-energy accelerators: generation strategies and measurement techniques	Prof. Dmitry Karlovets
		09:50 - 10:30
	Coffee break	
		10:30 - 11:00
1:00	Vortex effects in QED scattering of high energy particles	Prof. Liangliang Ji
		11:00 - 11:40
	Generation of Vortex Gamma Photons and Manipulation of Giant Multipole Resonances via nonli Prof. Jian-Xing Li	near Compton scattering
12:00		11:40 - 12:20
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	lunches at hot	12:20 - 14:00
		12:20 - 14:00 Prof. Andrey Surzhykov
		12:20 - 14:00 Prof. Andrey Surzhykov 14:00 - 14:40
	lunches at hot	12:20 · 14:00 Prof. Andrey Surzhykov 14:00 · 14:40 Sophie Strnat
4:00	Collision studies with vortex electrons and ions	12:20 - 14:00 Prof. Andrey Surathykov 14:00 - 14:40 Sophia Striver 14:40 - 15:10
4:00		12:20 · 14:00 Prof. Andrey Surzhykov 14:00 · 14:40 Sophie Strnat
14:00	Collision studies with vorrex electrons and lons Collision studies with vorrex electrons and lons Vortex electron scattering by atomic targets Twisting Wavefunctions of Relativistic Electrons via Intense Laser Pulses	12:20 - 14:00 Prof. Andrey Surathykov 14:00 - 14:40 Sophia Striver 14:40 - 15:10
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13:00 14:00 15:00	Collision studies with vortex electrons and ions Collision studies with vortex electrons and ions Vortex electron scattering by atomic targets Twisting Wavefunctions of Relativistic Electrons via Intense Laser Pulses Coffee break Discussion: vortex states prospects and challenges	12:20 - 14:00 Prof. Anthrey Surzhykov 14:00 - 14:40 Sophia Simer 14:40 - 15:10 Dr Zhigang Bir 15:10 - 15:40
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banquet

April 26, Fri

:00	Atomic Spectroscopy with Twisted Photons	Prof. Andrei Afanasev
		09:00 - 09:40
	Structured Quantum Waves: From Light to Matter Waves	Prof. Robert Fickler
:00		09:40 - 10:20
	Coffee break	
	A novel way to study nuclear giant resonances with vortex gamma photons	10:20 - 10:50 Prof. Yifei Niu
00		
		10:50 · 11:30
	Structured neutron waves	Prof. Dmitry Pushin
00		11:30 - 12:10
	Lunch	
:00		
		12:10 - 14:00
00	Nuclear excitation by electron capture with electron vortex beams	Prof. Yuanbin Wu
		14:00 · 14:40
	Nuclear photoabsorption in 229-Th using twisted light	Tobias Kirschbaum
		Tobias Kirschbaum 14:40 - 15:10
	Nuclear photoabsorption in 229-Th using twisted light Production of Neutron with Orbital Angular Momentum for Fundamental Physics Experiments	Tobias Kirschbaum
		Tobias Kirschbaum 14:40 - 15:10 Niels Geerits
:00	Production of Neutron with Orbital Angular Momentum for Fundamental Physics Experiments	Tobias Kirschbaum 14:40 - 15:10 Niels Geerits
:00	Production of Neutron with Orbital Angular Momentum for Fundamental Physics Experiments	Toblas Kirschbaum 14:40 - 15:10 Niels Geerks 15:10 - 15:40 15:40 - 16:10 Dr Nikolai Korchagin
:00	Production of Neutron with Orbital Angular Momentum for Fundamental Physics Experiments Coffee break	Toblas Kirschbaum 14:40 - 15:10 Niels Geerts 15:10 - 15:40 15:40 - 16:10
00	Production of Neutron with Orbital Angular Momentum for Fundamental Physics Experiments Coffee break Time-like proton form factors with vortex states	Toblas Kirschbaum 14:40 - 15:10 Niels Geerks 15:10 - 15:40 15:40 - 16:10 Dr Nikolai Korchagin 16:10 - 16:40
00	Production of Neutron with Orbital Angular Momentum for Fundamental Physics Experiments Coffee break Time-like proton form factors with vortex states	Tobies Kirschbeum 14-40 - 15-10 Niels Geerds 15-10 - 15-40 Dr Nikolai Korchagin 16:10 - 16:40 Dr Nikolai Korchagin 16:10 - 16:40 Pengcheng Zhao 16:40 - 17:10 Bei Liu
:00	Production of Neutron with Orbital Angular Momentum for Fundamental Physics Esperiments Coffee break Time-like proton form factors with vortex states Momentum space oscillation properties of vortex states collision The superklick effect in high-energy vortex state collisions	TobleS Kirschbaum 14-40 - 15-10 Niels Geerks 15-10 - 15-40 Dr Nieloale Korchagin 16-10 - 16-40 Pengcheng Zhao 16-40 - 17-10 Bei Liu 17-10 - 17-40
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April 27, Sat



Free afternoon

April 28, Sun

Full day excursion to JUNO