

2019 BC Winter School for Theoretical Condensed Matter Physics

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Week 1: Dec 22-23							
10:00 - 12:00						Self-study: Second Quantization, Many-body operators. Examples like Coulomb Interaction, spin-spin Interaction, Jellium Model, and electron-phonon interaction*	Seminar (hxd): Holstein Primakoff transformation, Schwinger boson transformation, and Jordan-Wigner transformation. Luttinger liquid, bosonization, Bogoliubov transformation and spin-charge separation*
Launch							Lobsters at Legal Seafood
14:00 - 16:00						Seminar (hxd): Wannier function and tight-binding approximation: Graphene, Hubbard Model, Heisenberg Model (ferromagnetic and anti-ferromagnetic)	Seminar (hyq): Su-Shrieffer-Heeger (SSH) model: Piers instability*, topological band structure, and edge states
16:00 - 17:00						Colloquium (hxd): Topological Invariants and Physical Observables	Project (hxd&hyq): Topological band structure of Kagome Lattice
Evening							

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	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Week 2: Dec 24-28							
10:00 - 12:00	Seminar (hxd): Time-Reversal Symmetry for spinless and spinful fermions, Kramer's theorem and vanishing of Hall conductance						
Launch							
14:00 - 16:00	Seminar (hxd): Chern Insulator, Two-level system and skyrmion number						
16:00 - 17:00	Colloquium (hyq): Haldane Model: topological band structure and QAHE						
Evening	Homemade hot pot						