

# HOLOGRAPHYCL

Anillos de Investigación  
en Ciencia y Tecnología

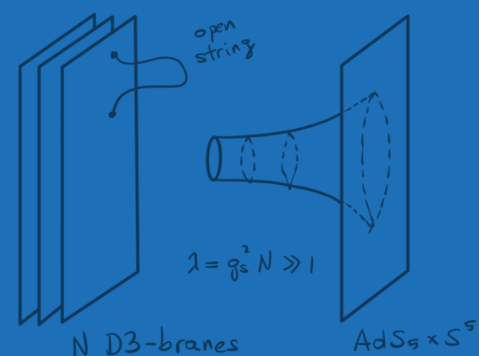
# TOPOLOGICAL AND HOLOGRAPHIC QUANTUM MATTER SCHOOL AND CONFERENCE

 JANUARY 11-13 AND 15-17, 2024

 PONTIFICIA UNIVERSIDAD CATÓLICA DE CHILE  
CAMPUS SAN JOAQUÍN

VICUÑA MACKENNA 4860, MACUL /  METRO L5, SAN JOAQUÍN

$$G_F = \frac{Z_k}{\omega - \overline{v_F} k - i C_k \frac{\omega^2}{E_F}} + G_{in}$$

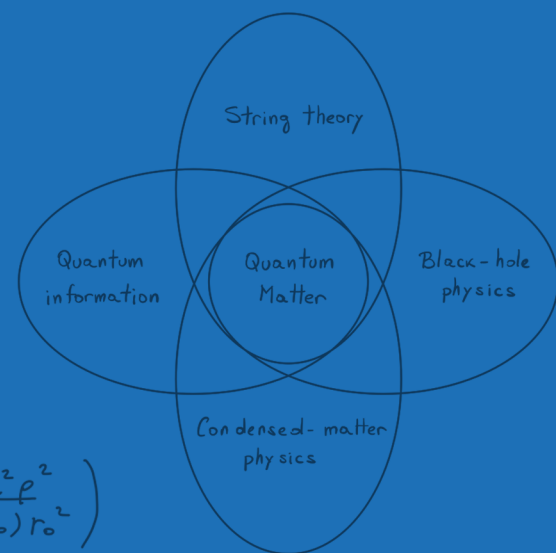
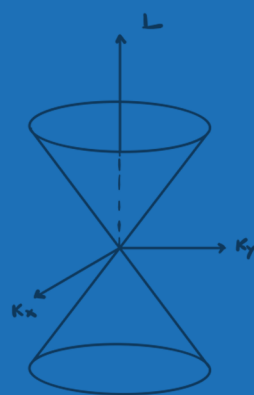


$$\sigma_{xy} = \frac{ie^2}{\hbar} \sum_n \int_{\vec{k}} \frac{d^3k}{(2\pi)^3} \langle \partial_y u_{\vec{k}}^n / \partial_x u_{\vec{k}}^n \rangle - \langle \partial_x u_{\vec{k}}^n / \partial_y u_{\vec{k}}^n \rangle = \frac{e^2}{\hbar} \sum_n C_n$$

## PLENARY SPEAKERS

- SANKAR DAS SARMA, UNIVERSITY OF MARYLAND (USA)
- EDUARDO FRADKIN, UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN (USA)
- BLAISE GOUTÉRAUX, ÉCOLE POLYTECHNIQUE (FRANCE)
- NICOLAS REGNAULT, ÉCOLE NORMALE SUPÉRIEURE PARIS, CNRS (FRANCE)
- BITAN ROY, LEHIGH UNIVERSITY (USA)

$$\sigma(\omega) = \frac{q^2}{\hbar} \sum_n \left( \frac{\hbar\omega}{k_B T} \right) \quad S_{BH} = \frac{k_B c^3 A}{4G\hbar}$$



## INVITED SPEAKERS

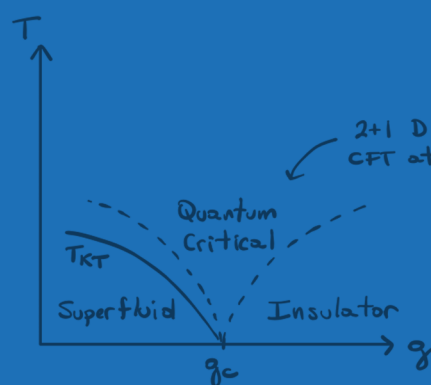
- DAVID ABERGEL, NATURE PHYSICS
- WLADIMIR BENALCAZAR, EMORY UNIVERSITY (USA)
- ERIC BERGSHOEFF, UNIVERSITY OF GRONINGEN (NETHERLANDS)
- NICOLÁS GRANDI, UNIVERSIDAD NACIONAL DE LA PLATA (ARGENTINA)
- KARL LANDSTEINER, INSTITUTO DE FÍSICA TEÓRICA UAM/CSIC (SPAIN)
- JOSEPH MACIEJKO, UNIVERSITY OF ALBERTA (CANADA)
- PAULA MELLADO, UNIVERSIDAD ADOLFO IBÁÑEZ (CHILE)
- ENRIQUE MUÑOZ, PONTIFICIA UNIVERSIDAD CATÓLICA DE CHILE (CHILE)
- IGNACIO SALAZAR LANDEA, UNIVERSIDAD NACIONAL DE LA PLATA (ARGENTINA)
- LUIS ROSALES, UNIVERSIDAD FEDERICO SANTA MARÍA (CHILE)
- PEDRO ORELLANA, UNIVERSIDAD FEDERICO SANTA MARÍA (CHILE)
- AYAN MUKHOPADHYAY, PONTIFICIA UNIVERSIDAD CATÓLICA DE VALPARAÍSO (CHILE)
- MARCELLO B. SILVA NETO, UNIVERSIDADE FEDERAL DO RIO DE JANEIRO (BRAZIL)
- ALEXANDER TYNER, NORDITA (SWEDEN)

$$\frac{\eta}{s} = \frac{1}{4\pi} \frac{\hbar}{k_B}$$

$$\sigma_{DC} = \frac{1}{e^2} \left( 1 + \frac{16\pi G e^2 p^2}{L^2 m^2(r_0) r_0^2} \right)$$

$$\mathcal{L}_i(\vec{k}) = -i \langle u_{\vec{k}} / \frac{\partial}{\partial k^i} / u_{\vec{k}} \rangle$$

$$ds^2 = a \frac{du^2}{u^2} - u^{2z} dt^2 + u^2 dr^2$$
$$t \rightarrow \frac{t}{b^z} \quad r \rightarrow \frac{r}{b} \quad u \rightarrow bu$$



$$(i\hbar \gamma^\mu \partial_\mu - mc) \Psi = 0$$

$$\langle \mathcal{O}(\vec{k}, \omega) \mathcal{O}(0) \rangle_R \sim (\omega^2/c^2 + \vec{k}^2)^{\Delta - \frac{d}{2} - \frac{1}{2}}$$

$$H = -t \sum_{\langle ij \rangle} (b_i^\dagger b_j + b_j^\dagger b_i) + U \sum_i n_i(n_i - 1) + \mu \sum_i n_i$$

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