

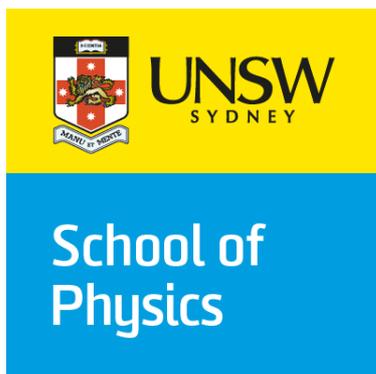
Gordon Godfrey Workshop on Spins, Topology and Strong Electron Correlations

25th November – 29th November 2019

Workshop website address:

<https://newt.phys.unsw.edu.au/Godfrey/2019/index.html>

Sponsors:



Gordon Godfrey Bequest



Gordon Hay Godfrey

Acting Head, School of Applied Physics 1951-1952

Gordon Godfrey was born in Sydney in 1892, and studied at Fort Street High School and the University of Sydney. He took his BA with first class honours in 1914, and his MA with first class honours and the University Medal (the second ever awarded) in 1919. He graduated with his BSc in 1922.

Godfrey entered the NSW teaching service in 1916, and was an assistant master at both Sydney Boys High School and Parramatta High School. From 1921 he was head teacher of physics, and later lecturer-in-charge of the Department of Physics, at the Sydney Technical College. At the college he developed the new diploma course in optometry and then created the diploma course in physics. In 1951 he was appointed an Associate Professor of the NSW University of Technology (later renamed the University of New South Wales) - he was the first representative of theoretical physics at the University.

Professor Godfrey served as Acting Head of the School of Applied Physics during 1951 and 1952, until Professor Milner commenced his position as Head of School. Professor Godfrey remained Deputy Head of School until his retirement in 1958, and Professor Milner claimed “no Head of School could have had a more-loyal or more-helpful deputy.” After his retirement, he continued to teach in the School of Physics until well into the 1970’s. He held an appointment for a time as Honorary Visiting Professor at UNSW, and until his death that of Honorary Associate of the School of Physics.

Professor Godfrey was a highly engaged and sincere teacher during his entire working life – a career that spanned nearly 60 years. In recognition of his services to optometrical education he was made an Honorary Life Fellow of the Institute of Optometrists (NSW).

Gordon Godfrey also made several contributions in research. His MA thesis, written in 1919, was probably the first paper written in Australia on special relativity. He also published work on atmospheric radio propagation and on the reflectance characteristics of multilayer coatings. After his retirement he turned to a long standing research interest in the presentation of quantum mechanics, especially the uncertainty principle.

Following the death of Professor Gordon Godfrey in 1979, and his wife Mrs Mabel Godfrey in 1980, the Godfrey Bequest was established. This gift funds a number of initiatives supporting theoretical physics at UNSW, primarily by providing financial support to assist in the travel and accommodation expenses of academic visitors to the University, but also by funding undergraduate prizes, postgraduate scholarships, and a biannual workshop.

Drinks and get together at Sydney Opera Bar,

Tuesday 26th November 6-8pm

Location: Lower Concourse Level, Sydney Opera House, Circular Quay. Head for the Opera House and make your way down towards the water (via the escalators or stairs) to the Lower Concourse Level.



Mobile Phone contacts: 04 1286 1520 (Oleg) / 04 3456 5595 (Alex)/ 0400481298 (Cecilia)

25th-29th November 2019
Gordon Godfrey Workshop

SYDNEY: magic moments

Explore, discover and enjoy the best places in Sydney

To make the most of your visit, we recommend you check each website link provided for up to date information.

Walk from Coogee Beach to Bondi Beach

Directions: Coogee is the closest beach to University of NSW (25 minutes). The main Coogee Bay Road runs directly to the beach.

Magic moment: The coastal walk north from Coogee Beach to Gordon Bay, Clovelly, and on to Bronte beach, Tamarama and Bondi beach. Walking time is around 1.5 hours. The total length of the walk is approximately 4 km.

Opera House and Royal Botanic Gardens

Directions: You can walk to the Sydney Opera House from the east side of Circular Quay (easy walking distance from any place in the city centre).

The Royal Botanic Gardens lies to the east of the Opera House. The park is free, open daily, 7am – 5.30pm.

Magic moment: **Royal Botanic Gardens**: Enjoy a view at Mrs Macquarie's Point with the panorama of the city, harbour, Opera House and Harbour Bridge. The Royal Botanic Gardens is one of the treasures of Sydney. The collection of plants and trees is extraordinary. Visit the Rose Garden, Herb Garden, Rare and Threatened Plants, Oriental Garden, Tropical Centre.

Website <https://www.rbgsyd.nsw.gov.au/visit>

Magic moment: **Sydney Opera House**:

Option A: Check the Sydney Opera House website for an up to date list of performances.

<http://www.sydneyoperahouse.com/whatson/index.aspx>

Option B: The Sydney Opera House tour (Advanced bookings with a 12% discount via online booking)

<https://www.sydneyoperahouse.com/visit-us/tours-and-experiences.html>

Aquarium and Darling Harbour

Directions: Darling Harbour is just to the west of the city centre, 15 mins walk. You can walk there from Market Street or George Street across Pyrmont Bridge or ferry service from Circular Quay.

Magic moment: [Sydney Aquarium](#), [National Maritime Museum](#), [Powerhouse Museum](#), [Madame Tussauds Sydney](#), [Darling Quarter](#), [Harbourside Shopping Centre](#), [Chinese Garden](#) and [Cockle Bay Wharf](#).

The Rocks, Harbour Bridge & Observatory Hill

Directions: The Rocks lies on the western side of Circular Quay. It is easy walking distance from the city centre as well. The best approach is on foot via George Street.

Magic moment: Strolling along the boardwalk at Campbell's Cove with its panorama of historic buildings, Harbour Bridge, Opera House and Harbour

Taronga Zoo

Directions: [Taronga Zoo](#) is the suburb of Mosman, best reached by a delightful 12-minute ferry ride from Wharf at Circular Quay with breathtaking views of Sydney Harbour and free shows and keeper talks throughout the day. The Zoo is open daily, 9.30am – 5:00pm.

Website: <https://taronga.org.au/sydney-zoo>

Art Gallery of NSW

Directions: The Art Gallery of NSW is one of Australia's leading art museums. Over one million visitors a year enjoy the Gallery's collection of Australian, Aboriginal, European, Asian and contemporary art. Located within beautiful parklands overlooking Sydney Harbour and only 15 minutes walk from the city centre. Admission to the Gallery is free, and so are the permanent galleries and most exhibitions and events.

Website: <http://www.artgallery.nsw.gov.au>

Manly beach and Manly walks

Directions: Manly is 30 mins by ferry from Circular Quay. The ferry runs regularly, 6.00am – 9.30 pm. There are several scenic walks in Manly.

Magic moment: It is a classic Sydney experience. Walk along Marine Parade to Fairy Bower and Shelly Beach from the southern end of Manly Beach. It takes 45 mins to the top scenic lookout.

Visit the Manly to Spit walk or part of it. The entire walk is 10 km long and takes three to four hours one way.

Website for Manly walking tracks <https://www.northernbeaches.nsw.gov.au/things-to-do/parks-and-trails>

Centrepont, Queen Victoria Building & Hyde Park

Directions: Centrepont, Queen Victoria Building & Hyde Park located in the centre of the city.

Magic moment: Take in the panoramic views of Sydney from the Observation level of the tower (250 metres above the city). The tower is open daily, 9.00am – 8:00 pm.

Website: <http://www.sydneytowereye.com.au/explore/about-sydney-tower/>

Visit The Queen Victoria Building a heritage-listed late-nineteenth-century building. A must see, is the Great Australian Clock in the northern end of the building, the world's largest animated clock, with 100 scenes of Australian history. Hyde Park offers a calm and peaceful walk around fig trees in the centre of the city.

Website: <https://www.qvb.com.au/>

Bondi Beach

Directions: Located just 8km from the Sydney centre, Bondi is one of the city's busiest beaches, best reached by bus or walking.

Bondi Beach is an iconic Sydney attraction with golden sands, turquoise waters and perfect waves, there is plenty to do beyond the surf. Fine dining, eclectic shopping markets, gorgeous coastal walks and a buzzing nightlife can all be experienced in Bondi.

Website: <http://www.sydney.com/destinations/sydney/sydney-east/bondi>

Centennial Park

Directions: Walking distance from UNSW to Centennial Park is 20 mins.

Magic moment: Find a wide variety of activities in Centennial Park: birds, cycling, gardens, picnicking, natural ponds, jogging, running.

Watson Bay & South Head

Directions: Watson Bay lies on South Head.

Magic moment: The beautiful walk from Camp Cove past Lady Jane Beach to Hornby Lighthouse at South Head. Walking time is around 1 hour. Enjoy a long lunch at Doyle's seafood restaurant on the Beach at Watson Bay.

Cronulla beach

Cronulla, in the Sutherland Shire on Sydney's southern coast, can be reached by train (travelling time from Central station is 45 min.), meaning you can visit without the headache of finding a carpark. It is a very nice beach and it has pleasant walk along the coast - 1.5 hours.

Website <http://www.sydney.com/destinations/sydney/sydney-south/cronulla/attractions/cronulla-beach>

Circular Quay & Parramatta river cruise

Directions: Circular Quay is the main hub for harbour ferries and a centre for buses and trains. It is pleasant walking distance from Circular Quay to the Opera House, The Rocks and city centre.

Magic moment: Take Parramatta river cruise and enjoy sitting on the back of a ferry. Day or night, the view is sensational. Please check timetable.

Website: <http://www.beyondthewharf.com.au/route/parramatta-river/>

Kamay Botany Bay National Park

Visit the place to see Captain Cook's landing place at Kurnell. The heritage-listed site is an important place in Australia's history. The Kurnell precinct of Kamay Botany Bay National park is open at 7am and gates are locked and the park is closed after 7:30pm.

Directions: by car only.

Website <http://www.nationalparks.nsw.gov.au/things-to-do/historic-buildings-places/Captain-Cooks-Landing-Place>

Royal National Park Coast Walk

Directions: Royal National Park lies south of Sydney. Train to Cronulla, 35 km south of Sydney city. There is an hourly ferry from Gunnamatta Bay in Cronulla to Bundeena.

Magic moment: This is one of the best beautiful classic walks along the coast of Royal National Park from north to south. Length: 28 km, time: 12 hours, grade: hard, finish: Otford Railway Station. It can be done as shorter walk. Check timetable for ferry and train. Enjoy!

Website for the walk description

[http://downloads.wildwalks.com/The%20Coast%20Track%20\(Otford%20to%20Bundeena\)%20\(nsw-royalnp-tcttb\).pdf](http://downloads.wildwalks.com/The%20Coast%20Track%20(Otford%20to%20Bundeena)%20(nsw-royalnp-tcttb).pdf)

Gordon Godfrey Program Schedule					
Time	Monday	Tuesday	Wednesday	Thursday	Friday
08:30 - 08:45	Tyree Room - G19 John Niland Scientia Building	Room G31 - K15 Old Main Building	Room G31 - K15 Old Main Building	Room G31 - K15 Old Main Building	K15 Old Main Building
08:45 - 09:00	Registration Workshop Opening				
09:00 - 09:30	Kirilly Riule Paratacamite Polymorphs: How Different Symmetries Affect the Magnetic Interactions and Ground State Properties of 2D Materials	Ben Powell A menagerie of insulators on the decorated honeycomb lattice	Jelena Klinovaia Second Order Topological Superconductivity in p-Junction Rashba Layers	Mikhail Kostylev Magnetic-film based Quantum Magnonics	
09:30 - 10:00	Bruce Normand One Proximate Kitaev Spin Liquid in the K-J-G Model on the Honeycomb Lattice	Xiaolin Wang Giant magnetoresistance and electromagnetic manipulation of liquid metals	Leonid Golub Gyrotropic optical effects in semiconductor quantum wells	Oleg Tretiakov Beyond Skyrmions: Antiskyrmions and Bimerons	(i) Discussion topic Spin orbit interaction in itinerant systems and nanostructures. Novel 2D materials (1 hour)
10:00 - 10:30	Harald Jeschke Search for spin liquids in pyrochlore lattice materials	Hyunsoo Yang Spin-Orbit Technologies: From Magnetic Memory to Terahertz Generation	Giordano Scappucci When will Germanium become the new leading material in quantum information?	Stephan Rachel Correlation-Driven Charge Order in a Frustrated Two-Dimensional Atom Lattice	
10:30 - 11:15	COFFEE BREAK	COFFEE BREAK	COFFEE BREAK	COFFEE BREAK	
11:15 - 11:45	Beitia Kollár Donor chains in Si as simple models simulator	Ding Zhang Ising pairing in few-layer stanene and Josephson effect in twisted BSCCO junctions	Allan MacDonald Orbital Ferromagnetism in Magic Angle Twisted Bilayer Graphene	Maja Cassidy Circuit QED at 1T with a graphene transmon	(ii) Discussion topic Novel materials. Oxides. Magnetism. (1 hour)
11:45 - 12:15	Jared Cole Charge transport in nanostructures: filling the void between ab-initio and effective models	Joerg Schmalian Electron and electron-phonon hydrodynamics	Marco Pollini Collective excitations in twisted bilayer graphene close to the magic angle	Jeff McCallum Superconductivity in Degenerately-doped Si Nanowire Devices	
12:15 - 14:15	LUNCH	Aydin Kesar Hydrodynamic electron flow in 2D semiconductor heterostructures (15 mins) Karina Hudson Probing the spin-orbit interaction using quantum point contacts (15 mins)	LUNCH	LUNCH	
14:15 - 14:45	Meera Patish Microscopic theory of exciton-polaritons		Susan Coppersmith Engineering Majorana zero modes in silicon	Lan Wang Spintronics based on 2D ferromagnetic materials and Van der Waals heterostructures	(iii) Discussion topic General discussion, all topics. (1 hour)
14:45 - 15:15	David Neilson Electron-Hole Superfluids in Semiconducting Solids		Wei Li Evidence of anisotropic Majorana bound states in 2M-Ws2	Semanti Bhattacharyya Probing quantum phase transition and decoherence in topological insulators with universal conductance fluctuations	
15:15 - 15:45	Elena Ostrovskaya Quantum depletion of an exciton-polariton condensate		Will Lawrie Universal Quantum Information with Hot Silicon Spins and Fast Germanium Holes (20 mins)	Tami Perego-Barnes Floquet systems manipulating topology	
15:45 - 16:30	COFFEE BREAK		Short COFFEE BREAK starts 15:55	COFFEE BREAK	
16:30 - 17:00	Murray Batchelor Paraferrimonic spin chains		Ulrich Zueicke Magnetoelectric effects in 2D materials	Julie Karel Uncovering Berry: The Role of Topology in the Anomalous Hall Effect of Antiferromagnetic Mn3Ge and Amorphous Ferromagnetic FeSi(1-x) and FeCo(1-y)Si	
17:00 - 17:30	Yuli Lyanda-Geller Domain walls and parafermions in 2D electron and hole systems		Dmitry Efimkin Topological Fluctuating Cooper Pairs in Superconductors	Michael Fuhrer Signature of helical transport in quantum spin Hallinsulator ultrathin Na3Bi	
17:30 - 18:00					
18:00 - 20:00		Sydney Opera Bar	Poster Session	Closing	