# AMSI-ANU Workshop on Microlocal Analysis and its Applications in Spectral Theory, Dynamical Systems, Inverse Problems, and PDE

**18 -23 February 2018**

**Beagle Bay Room, Murramarang Beachfront Resort, NSW**

| | Sunday | Monday | Tuesday | Wednesday | Thursday | Friday |
|---|---|---|---|---|---|---|
| 7.45 – 8.45 | | **Breakfast** | **Breakfast** | **Breakfast** | **Breakfast** | **Breakfast** |
| 9.00 –10.00 | | Frédéric Faure | Katya Krupchyk | Tanya Christiansen | Clotilde Fermanian | Dean Baskin |
| 10.00–10.30 | | **Morning tea** | **Morning tea** | **Morning tea** | **Morning tea** | **Morning tea** |
| 10.30 –11.30 | | Colin Guillarmou | Nguyen Viet Dang | Andras Vasy | Matthieu Léautaud | Jared Wunsch |
| 11.30 –12.30 | | *Short talks:*<br><br>*M. Ingremeau*<br>*F. Wang*<br>*A. Hassell*<br>*M. Varghese*<br>*X. Chen* | *Short talks:*<br><br>*G.Riviere*<br>*M.Hitrik*<br>*S. Eswarathasan*<br>*K.Morgan*<br>*A. Sikora* | Peter Hintz | Melissa Tacy | |
| 12.30 – 1.30 | **Leave ANU (1pm)** | **Lunch** | **Lunch** | **Lunch** | **Lunch** | **Lunch** |
| 1.30 – 2.30 | Leave airport (1.30pm) | | | Lysianne Hari | | Return by bus (1.30pm) |
| 2.30 – 6.30 | Arrive at resort (4.30pm) | | | | | Arrive at airport (4.30pm) |
| 6.30 – 7.30 | **Dinner** | **Dinner** | **Dinner** | **Dinner** | **Dinner** | **Arrive ANU (5.00pm)** |
| 7.30 – 8.30 | Welcome Wine & cheese | *Short talks:*<br><br>*J. Shapiro*<br>*H. Christianson*<br>*K. Datchev*<br>*J. Gell-Redman*<br>*Z. Guo* | *Short talks:*<br><br>*Y. Canzani*<br>*X. Han*<br>*J.Rowlett*<br>*E. Le Masson*<br>*L. Tzou* | Dinner | Jeffrey Galkowski | |

## Monday 19 March

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|---|---|
| 9.00 – 10.00 | Some properties of hyperbolic dynamics from micro-local analysis |
| 10.30 - 11.30 | Horocyclic invariance of Ruelle resonant states in dimension 3 |
| 11.30 - 12.30 | Short talks:<br>- A Lower bound on the Bogomolny-Schmit constant<br>- Some positivity results for fractional GJMS operators or order between 2 and 4.<br>- Quantum ergodicity at small scales<br>- Spectral Gap-labelling conjecture with nonzero magnetic field<br>- TBA |
| 6.30 – 7.30 | Short talks:<br>- Semiclassical resolvent estimates in low regularity<br>- Equidistribution of Neumann data mass on triangles and applications<br>- Exterior resolvent estimates and wave decay<br>- Dirac operators and the index formula on iterated wedge spaces<br>- Generalised Strichartz estimates for Schrödinger equation |

## Tuesday 20 March

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|---|---|
| 9.00 – 10.00 | Inverse boundary problems for elliptic PDE in low regularity setting |
| 10.30 - 11.30 | Pollicott-Ruelle resonances and the asymptotic spectrum of Witten Laplacians |
| 11.30 - 12.30 | Short talks:<br>- Equidistribution of toral eigenfunctions along hypersurfaces<br>- Toeplitz operators and positive canonical transformations<br>- Tangent points to nodal sets of random eigenfunctions<br>- Local Energy, Resolvents, and Wave Decay<br>- Meromorphic extension of a resolvent in one dimension |
| 6.30 – 7.30 | Short talks:<br>- Recurrent conormal directions to a submanifold for Anosov flows<br>- Nodal curves of eigenfunctions and geodesics on Riemannian surfaces<br>- The Poisson relation and billiards in polygons<br>- Lp norms of joint eigenfunctions on the sphere<br>- Tomography and rigidity in non-compact spaces |

## Wednesday 21 March

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| 9.00 – 10.00 | Resonance rigidity for Schrödinger operators in even dimensions |
| 10.30 - 11.30 | Global analysis for linear and nonlinear waves |
| 11.30 - 12.30 | Global stability problems in General Relativity |
| 1.30 – 2.30 | Propagation of coherent states |

## Thursday 22 March

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|---|---|
| 9.00 – 10.00 | Wigner measures and effective mass theorems |
| 10.30 - 11.30 | Control from an internal hypersurface |
| 11.30 - 12.30 | Lp estimates for joint eigenfunctions |
| 7.30 – 8.30 | Concentration of Eigenfunctions: Sup-norms and Averages |

## Friday 23 March

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|---|---|
| 9.00 – 10.00 | Radiation fields on asymptotically Minkowski spacetimes |
| 10.30 - 11.30 | Diffraction of semiclassical singularities by conormal potentials |