

Workshop on General Relativity and Geometric Analysis

January 22 – 28, 2010, Monash University

All talks will be given in Lecture Theater S14, opposite the School of Mathematical Sciences (Building 28). Please see the notes on the last page and the attached map for all relevant locations.

Thursday January 21

18:00-19:00 dinner in the Mannix College dining room

Friday January 22

8:00-8:45 Breakfast (for residents of Mannix) in the Mannix College dining room

9:30-10:20 **James McCoy**, University of Wollongong
Curvature contraction of convex hypersurfaces

10:30-11:00 Morning Coffee in room M342

11:00-11:50 **Bryan Wang**, Australian National University
Geometry of gerbes, D-branes and twisted index theory

12:00-13:00 BBQ Lunch in front of the School of Mathematical Sciences

13:30-14:20 **Julie Clutterbuck**, Australian National University
Eigenvalue estimates for the Laplacian on manifolds with boundary

14:30-15:00 Afternoon Coffee in room M342

15:00-15:50 **Feng Xu**, Australian National University
Laplacian flow for G_2 -structures

17:30-18:00 Pre-dinner drinks in the Senior Common Room at Mannix College

18:00-19:00 Reception dinner in the Mannix College dining room

Saturday January 23

8:00-8:45 Breakfast (for residents of Mannix) in the Mannix College dining room

9:00-9:50 **Shing-Tung Yau**, Harvard University
Quasi-local mass in general relativity

10:00-10:30 Morning Coffee in room M342

10:30-11:20 **Mathai Varghese**, University of Adelaide
T-duality in a background flux and topology change of spacetime

12:00-13:00 Lunch in the Mannix College dining room

13:30-14:20 **Thomas Leistner**, University of Adelaide

Holonomy groups of Lorentzian manifolds

14:30-15:00 Afternoon Coffee in room M342

15:00-15:50 **Jan Metzger**, Albert Einstein Institute

Willmore surfaces under an area constraint

18:30 Banquet in honor of Professor Shing-Tung Yau at Samsara

Sunday January 24

8:00-8:45 Breakfast (for residents of Mannix) in the Mannix College dining room

9:00-9:50 **Ailana Fraser**, University of British Columbia

The first eigenvalue of the Dirichlet-to-Neumann map and minimal surfaces

10:00-10:30 Morning Coffee in room M342

10:30-11:20 **Lan-Hsuan Huang**, Columbia University

Center of mass of asymptotically flat manifolds

11:30-13:00 BBQ in front of the School of Mathematical Sciences

13:00-late evening Phillip Island Trip for registered participants. We will be picked up from the parking lot adjacent to Building 28, the School of Mathematical Sciences, and taken back to Mannix and Ibis afterwards. The trip is \$100 a person. Please let Michael Eichmair know if you would like to join and have not yet registered, and ideally give the fee to him prior to Sunday.

18:00-19:00 Dinner in the Mannix College dining room (for those who are not going on the Phillip Island Trip)

Monday January 25

8:00-8:45 Breakfast (for residents of Mannix) in the Mannix College dining room

9:00-9:50 **Richard Schoen**, Stanford University

On the geometry of static and stationary spacetimes

10:00-10:30 Morning Coffee in room M342

10:30-11:20 **Mu-Tao Wang**, Columbia University

Properties of quasilocal mass

12:00-13:00 Sandwich lunch provided at the School of Mathematical Sciences

13:30-14:20 **Ben Andrews**, Australian National University

Comparison theorems for the isoperimetric profile under Ricci flow and curve shortening flow

14:30-15:00 Afternoon Coffee in room M342

15:00-15:50 **Xiao Zhang**, Chinese Academy of Sciences

On a quasi-local mass

18:00-19:00 Dinner in the Mannix College dining room

Tuesday January 26

8:00-8:45 Breakfast (for residents of Mannix) in the Mannix College dining room

9:00-9:50 **Lars Andersson**, Albert Einstein Institute

Hidden symmetries and linear fields on Kerr

10:00-10:30 Morning Coffee in room M342

10:30-11:20 **Xiaodong Wang**, Michigan State University

An integral formula for the volume entropy with applications to rigidity

12:00-13:00 Lunch in the Mannix College dining room

13:30-14:20 **Daniel Daners**, University of Sydney

An isoperimetric inequality for the p -Laplacian with Robin boundary conditions

14:30-15:00 Afternoon Coffee in room M342

15:00-15:50 **Charles Baker**, Australian National University

The Mean Curvature Flow of submanifolds of high codimension

18:00-19:00 Dinner in the Mannix College dining room

Wednesday, Thursday (January 27-28): No talks

8:00-8:45 Breakfast (for residents of Mannix) in the Mannix College dining room

Locations:

- *Mannix College* is across Wellington Road from the Monash Bus loop close to the intersection with Princes Highway. (They have no house number.) Please be sure to be dropped off by and enter via their main entrance facing Wellington Road.
- The *Mannix College dining room* will be to your left past the sliding door if you enter the building through their front entrance.
- The *Senior Common Room* is above the Mannix College dining room. We will have pre-dinner drinks there on Friday, and this pleasant and comfortable room is reserved for us through the duration of the workshop to have discussions. There will be a white board in this room.
- The *School of Mathematical Sciences* or *Building 28* is in the west of the campus, about 5 minutes walk from Mannix College.
- The School's meeting room M342 on the third floor of Building 28 is where we will have our Morning and Afternoon Coffees.

- All talks will be held in *S14*, a lecture room in *Building 29* opposite the School of Mathematical Sciences. The room is equipped with many large blackboards, a projector connected to both a Windows Laptop and a Mac, and an overhead projector.
- The banquet in honor of Professor Shing-Tung Yau will be held at *Samsara* on Saturday beginning at 18:30. In case you would like to go there on your own, their address is 5-7 Centreway, Pinewood, Mount Waverley, Vic 3149, and their phone number is 0398876666. Transport on Saturday will be organized at 18:00 with pick up from the front entrance of Mannix College.
- Office space in the School of Mathematical Sciences has been reserved for participants, including several spacious rooms for discussions. The comfortable common and tutorial rooms at Mannix College are also at our disposal for the duration of the workshop.

Contact numbers:

Please do not hesitate to call if you have any questions.

- Michael Eichmair (staying at Mannix College): 0419475576
- Pengzi Miao: 0432413685
- Gertrude Nayak: 0417599968