



Banff International Research Station

for Mathematical Innovation and Discovery

The stable trace formula, automorphic forms, and Galois representations
August 10-17, 2008

MEALS

*Breakfast (Buffet): 7:00 – 9:30 am, Sally Borden Building, Monday – Friday

*Lunch (Buffet): 11:30 am – 1:30 pm, Sally Borden Building, Monday – Friday

*Dinner (Buffet): 5:30 – 7:30 pm, Sally Borden Building, Sunday – Thursday

Coffee Breaks: As per daily schedule, 2nd floor lounge, Corbett Hall

*Please remember to scan your meal card at the host/hostess station in the dining room for each meal.

MEETING ROOMS

All lectures will be held in Max Bell 159 (Max Bell Building accessible by walkway on 2nd floor of Corbett Hall). LCD projector, overhead projectors and blackboards are available for presentations. Please note that the meeting space designated for BIRS is the lower level of Max Bell, Rooms 155-159. Please respect that all other space has been contracted to other Banff Centre guests, including any Food and Beverage in those areas.

PROGRAM

Sunday

16:00 Check-in begins (Front Desk – Professional Development Centre - open 24 hours)

Lecture rooms available after 16:00 (if desired)

17:30-19:30 Buffet Dinner

20:00 Informal gathering in 2nd floor lounge, Corbett Hall (if desired)

Beverages and small assortment of snacks available on a cash honour-system.

Monday

7:00-8:45 Breakfast

8:45-9:00 Introduction and Welcome to BIRS by BIRS Station Manager, Max Bell 159

9:00-10:00 C. Skinner, Classical modular forms and associated Galois representations in the light of automorphic representations of $GL(2)$

10:00-10:30 Coffee Break, 2nd floor lounge, Corbett Hall

10:30-12:00 J. Cogdell, Automorphic representations of $GL(n)$ and classical groups

12:00-13:00 Lunch

13:00-14:00 Guided Tour of The Banff Centre; meet in the 2nd floor lounge, Corbett Hall

14:00-15:30 M. Harris, Introduction to Langlands reciprocity for Galois representations

15:30-16:00 Coffee Break, 2nd floor lounge, Corbett Hall

16:00-17:00 T. Gee, Introduction to Langlands functoriality for classical groups (presented in terms of Galois-theoretic parameters)

17:30-19:30 Dinner

After-dinner review session

Tuesday

7:00-9:00 Breakfast
9:00-10:30 A. Minguez, Introduction to representation theory of p-adic classical groups.
10:30-10:40 Group photo session
10:40-11:00 Coffee Break, 2nd floor lounge, Corbett Hall
11:00-12:00 J. Arthur, Introduction to harmonic analysis on p-adic groups
12:00-13:30 Lunch
14:00-15:30 D. Shelstad, Cohomological representations of $GL(n)$ and real classical groups
15:30-16:00 Coffee Break, 2nd floor lounge, Corbett Hall
16:00-17:00 M. Harris, Local Langlands correspondence for $GL(n)$ over p-adic fields
17:30-19:30 Dinner
After-dinner review session

Wednesday

7:00-9:00 Breakfast
9:00-10:00 J. Bellaïche, The trace formula for cocompact groups
10:00-10:15 Coffee Break, 2nd floor lounge, Corbett Hall
10:15-11:15 J.-P. Labesse, The simple trace formula
11:15-12:15 E. Lapid, Applications of the simple trace formula
Lectures
12:30-13:30 Lunch
Free Afternoon
17:30-19:30 Dinner
After-dinner review session

Thursday

7:00-9:00 Breakfast
9:00-10:30 T. Hales, Introduction to stable conjugacy
10:30-11:00 Coffee Break, 2nd floor lounge, Corbett Hall
11:00-12:00 S.W. Shin, The stable trace formula, part I.
Lectures
11:30-13:30 Lunch
13:30-14:30 J.-P. Labesse, The stable trace formula, part II.
14:30-15:30 J. Bellaïche, Endoscopic transfer of unramified representations
15:30-16:00 Coffee Break, 2nd floor lounge, Corbett Hall.
16:00-17:30 D. Shelstad, Endoscopy for real groups
17:30-19:30 Dinner
After-dinner review session (or session on the Hitchin fibration and the fundamental lemma)

Friday

7:00-9:00 Breakfast
9:00-10:00 J. Cogdell, Introduction to functoriality for classical groups
10:00-11:00 Coffee Break, 2nd floor lounge, Corbett Hall
11:00-12:30 J. Arthur, Functorial transfer for classical groups, statements
12:30-13:30 Lunch
14:00-15:30 J. Arthur, Functorial transfer for classical groups, sketch of proofs.
15:30-16:00 Coffee Break, 2nd floor lounge, Corbett Hall.
16:00-17:00 M. Harris, Simple stable base change and descent for $U(n)$, following Labesse
17:30-19:30 Dinner
After-dinner review session

Saturday (program subject to change)

7:00-9:00 Breakfast

9:00-10:30 L. Fargues, Introduction to Shimura varieties

10:30-11:00 Coffee Break, 2nd floor lounge, Corbett Hall

11:00-11:45 L. Fargues, Integral models of PEL Shimura varieties, part I.

11:45-13:30 Lunch

13:30-14:15 L. Fargues, Integral models of PEL Shimura varieties, part II.

14:15-15:15 S. Morel, Points on special fibers of PEL Shimura varieties, following Kottwitz, part I.

15:15-15:45 Coffee Break, 2nd floor lounge, Corbett Hall.

15:45-16:45 S. Morel, Points on special fibers of PEL Shimura varieties, following Kottwitz,
part II.

17:30-19:30 Dinner

After-dinner review session

Sunday

7:00-9:00 Breakfast

9:00-10:00 E. Mantovan, Newton stratification of special fibers of PEL Shimura varieties.

10:00-11:00 Coffee Break, 2nd floor lounge, Corbett Hall

11:00-12:00 S. W. Shin, Points on special fibers of PEL Shimura varieties and introduction to vanishing cycles.

12:00-13:30 Lunch

SOME BACKGROUND READING

On automorphic representations

1. *An introduction to the Langlands program*, Joseph Bernstein, Stephen S. Gelbart, eds., Birkhäuser, 2003.

2. *Harmonic Analysis, the Trace Formula, and Shimura Varieties: Proceedings of the Clay Mathematics Institute*, James Arthur, David Ellwood, Robert Kottwitz, eds., Clay Mathematics Proceedings, 2003.

3. *Lectures on Automorphic L-Functions (Fields Institute Monographs, 20)*, James Cogdell, Henry Kim, M. Ram Murty, 2004.

And the articles on the book project website:

<http://fa.institut.math.jussieu.fr/node/44>

especially the items in sections 1 and 2.