Graduate Orientation Session Schedule

September-09-11
2:24 PM

Dear All,

Please come!

The Math Department will be holding its annual Graduate Orientation Session this Monday (September 12) starting at 4PM at Bahen 6183. We will have some short presentations by various dignitaries, and then a sequence of mostly 3-minute course descriptions by professors in our department, with some pizza and pop at 5PM. The anticipated approximate subject to change tentative schedule will be:

4:10 Introduction by Prof. Kumar Murty, Chair of the Mathematics Department.
4:15 GSU/MGSA representative, Alexander Dahl.
4:20 SGS / Office of Student Life representative, Jennifer Pinker.
4:25 Dror Bar-Natan, Graduate Coordinator (also speaking for Ida Bulat and Emile LeBlanc).
4:35 Let's Talk Science representative, Nika Shakiba.

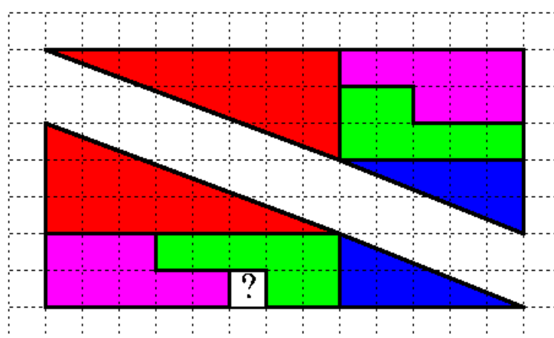
4:40 Prof. Lisa Jeffrey.
4:45 Prof. Man-Duen Choi.
4:48 Prof. Ilia Binder.
4:51 Prof. George Elliott.
4:54 Prof. Ragnar-Olaf Buchweitz.

5:00 Pizza and Pop at the Math Lounge.

5:15 Prof. Jim Arthur.
5:18 Prof. Almut Burchard.
5:21 Prof. Boris Khesin.
5:24 Ben Rifkind for Prof. Balint Virag.
5:27 Prof. Florian Herzig.

5:33 Dr. Daniel Moskovich.
5:36 Prof. John Bland.
5:39 Prof. Robert McCann.
5:42 Prof. Michael Yampolsky.
5:45 Prof. Ramarathnam Venkatesan

How Can This Be???



two congruent triangles are assembled from congruent pieces, yet one of them is bigger

You might think the session will end at 5:48. Past experience suggests that we will have some delays, and we will actually go on until 6 or maybe even later. After that, the MGSA is organizing a pub evening. Meet at the math lounge and follow the leaders to the GSU pub!

Best,

Dror.

Graduate Orientation Session - Dror's Page

September-11-11
1:42 PM

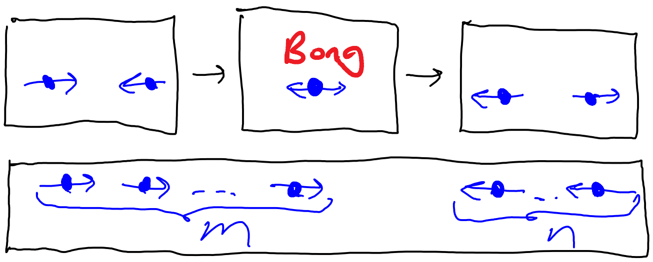
1. Read our handbook! It's at http://www.math.toronto.edu/cms/current-students-grad/
2. For all thing administrative, go to Ida. Pay attention to her emails!
   (Image from http://www.artsci.utoronto.ca/main/newsitems/ida-bulat/)

3. Apply to every grant you hear of!
4. For all things TAish, go to Abe Igelfeld.

Riddle 4. Can you cover a disk of diameter 100 using 99 100×1 rectangles?

9. Everybody else also feels stupid.
10. Get some teaching experience.
11. Travel and be seen.
12. We do proofs, not essays. (NO!)

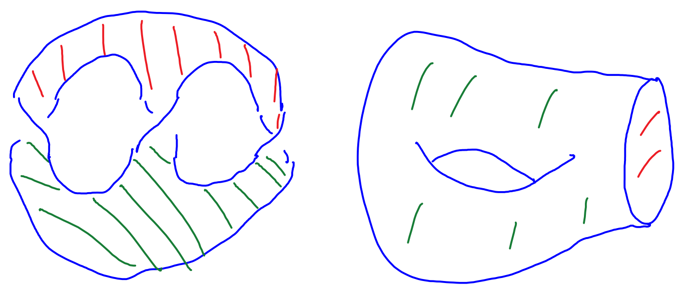
Riddle 1.



How many bongs?

13. Get cozy with computers.
14. Put your picture on the wall and your name on the web!
15. Have a backup plan, but don't rush to use it.
16. Diversify your portfolio!

Riddle 2. Show that the following two subsets of $\mathbb{R}^3$ are homeomorphic:



5. Don't settle for the minimal passing grade.
6. Buy used books but don't sell them. (Or download...)
7. Shop! Explore! Broaden! Go to many talks and seminars.
8. The faculty are lonely, chat them up!

Riddle 3. Show that on any two odd-shaped potatos you can draw a pair of rigidly congruent closed curves.

Wikipedia image @ Potato

Riddle 5. Is there any hyperbolic geometry on this page? And spherical?

Enjoy Toronto!

(and come to the GSU pub when this session is over...)

Welcome to the Departmental Computer Systems

Finding Information

http://www.math.toronto.edu/cms/computing/

is the main computing help page. (You can reach it from the main departmental page by choosing the **About** section near the top of that page, and then the **Computing** link on the left-hand side of the page.)

The **Search** button in the upper right corner of the main webpage is also very useful. Try "`wireless`", or "`printing`", or "`email and spam`" for example.

More Useful Information

Webmail: `https://mail.math.toronto.edu/`
Print *thesis.pdf* in the mailroom: `Print -Plw2 thesis.pdf`
Public terminals: BA6200
Blogs and wikis are available: `http://blog.math.toronto.edu`
Mathematica, Maple, Matlab: available on *sphere*

Need Help?

Because things are especially busy at the start of the academic year it is best to email your questions. The **Contact User Support** page on the Computer Help page lists three main emails:

`requests@math.toronto.edu` for systems related questions/comments
`consult@math.toronto.edu` is for general computing questions
`webmaster@math.toronto.edu` is for web related questions

(Email sent from your departmental email account is much less likely to be accidentally flagged as spam.)

Security

You passwords are for you only; do not give out your password to anyone. We will **never** ask for it via email (except perhaps by encrypted email, only if prearranged).

An HTML version of this page is available at:
`http://www.math.toronto.edu/intro2011`

Topics in Geometry: Geometric Group Theory
Robert Young
Winter 2012, MWF 9-10

Geometric group theory is the study of finitely-presented groups from a geometric viewpoint. Geometric group theorists study how the algebraic properties of groups are connected to the geometric properties of their Cayley graphs and of the spaces that they act on.

This course is an introduction to some of the basic ideas of geometric group theory. One of the main focuses will be the geometry of spaces and groups with negative and non-positive curvature and how to use this to understand groups that act on non-positively curved spaces.

Some of the topics I plan to address:

- Basics of geometric group theory: The "geometry" of a group is a little ill-defined, because different sets of generators correspond to different Cayley graphs and different word metrics. How can we define properties that don't depend on the choice of generators?

- Hyperbolic spaces and groups: Much of modern geometric group theory originated in Gromov's study of hyperbolic groups, which are a coarse version of negatively-curved spaces. Part of the power of this notion lies in the many equivalent definitions of hyperbolicity, and part of the power lies in how common these groups are (for example, Gromov proposed that there's a sense in which a "random" finitely presented group is hyperbolic). We will explore some of these definitions and their applications.

- The geometry of the word problem: The word problem is a classical and fundamental algorithmic problem about finitely-presented groups – given a product of generators, how do you identify what group element it represents? How do you tell if it's the identity? It turns out that you can interpret this combinatorial problem in a very geometric way, and we'll consider what this tells us about the geometry of various groups.

- Non-positively curved groups and spaces: How can we weaken the notion of hyperbolicity to include non-positively curved spaces? Subgroups of non-positively curved groups often have remarkable geometric properties and we'll study some examples.