Alberta Number Theory Days XII

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May 1–3, 2020

Special Circumstances

Due to the COVID crises all in person events where by necessity cancelled and we chose to proceed with our planned conference in a virtual format using online support systems provided by the Banff International Research Station (BIRS).

To honour the memory of the Late Richard Guy this event was dedicated to him.

Objectives achieved:

This was the twelfth edition of Alberta Number Theory Days. Previous conferences took place in Lethbridge (2008), Calgary (2009), and BIRS (2010, 2011, 2013, 2014, 2015, 2016, 2017, 2018, 2019). This meeting gathers the number theorists of the Alberta Universities to interact and exchange ideas. Its purpose is to solidify the relations between Alberta Number Theorists, to motivate local young researchers, and to create ties with out-of-province researchers. Despite the online nature of the event participants did have opportunities to interact socially.

This year, the conference had a total of 13 talks. One was a plenary lecture given by Mike Bennett from the University of British Columbia. Other out-of-province speakers included Allysa Lumley from the CRM (Montreal). There were a total of 5 talks by Faculty Members, 3 by Postdoctoral Researchers and 5 by Graduate Students.

The event included participants from the University of Alberta, the University of Calgary, the University of Lethbridge, Concordia University of Edmonton, King's University in Edmonton, and Mount Royal University in Calgary. One of our aims is to provide early-career researchers with access to a nourishing research environment is reflected in the participant pool in general. To this end our list of participants include both senior undergraduate and graduate students. Do to the online nature of this event there were no limits on participation numbers and invitations to participate were extended to anyone with a connection to number theory in Alberta. There were a total of 44 registered participants, though not all of these attended all the talks we recorded at least 35 unique attendees across all events and the major events enjoyed over 30 participants. Due to the open nature of the invitation to participate the demographics of the event reflect precisely those of the Alberta Number Theory community.

Scientific highlight:

This year, the scientific highlights included the plenary talk given by Michael Bennett from the University of British Columbia as well as several talks with personal connections to the work of Richard Guy.

List of registered particpants:

Aygin, Zafer Selcuk (University of Lethbridge)
Fiori, Andrew (University of Lethbridge)
Klys, Jack (University of Calgary)
Primozic, Eric (University of Alberta)
Akbary, Amir (University of Lethbridge)
Ali, Abid (University of Alberta)
Bennett, Michael (University of British Columbia)
Berger, Arno (University of Alberta)
Broadbent, Sam (University of Lethbridge)
Cameron, Alex (University of Calgary)
Cunningham, Clifton (University of Calgary)
Das, Sourabh (University of Lethbridge)
Fakhari, Milad (University of Lethbridge)
Feaver, Amy (The King's University)
Greenberg, Matthew (University of Calgary)
Gunn, Keira (University of Calgary)
Hamieh, Alia (University of Northern British Columbia)
Hasanalizade, Elchin (University of Lethbridge)
Jacobson, Jr., Michael (University of Calgary)
Joshi, Aniket (University of Alberta)
Kadiri, Habiba (University of Lethbridge)
Leem, Sumin (University of Calgary)

Lumley, Allysa (York University)
MacDonald, Colter (University of Alberta)
Morrill, Ryan (University of Calgary)
Ng, Nathan (University of Lethbridge)
Nguyen, Dang Khoa (University of Calgary)
Pacheco Castan, Edgar (University of Calgary)
Patnaik, Manish (University of Alberta)
Roettger, Eric (Mount Royal University)
Scheidler, Renate (University of Calgary)
Shen, Quanli (University of Lethbridge)
Smolcic, Josip (University of Lethbridge)
Sobrevilla Moreno, Pedro (University of Calgary)
Steele, James (University of Calgary)
Swidinsky, Joshua (University of Lethbridge)
Topaz, Adam (University of Alberta)
Totani, Yash (University of Lethbridge)
Tran, Ha (Concordia University of Edmonton)
Vooys, Geoff (University of Calgary)
Wong, Peng-Jie (University of Lethbridge)
Yee, Randy (University of Waterloo)
Zhang, Qing (University of Calgary)
de Waal, André (University of Calgary)

Titles of talks:

Speaker: Renate Scheidler
Title: Difference Necklaces

Speaker: Randy Yee
Title: Unconditional computation of fundamental units in number fields

Speaker: Peng-Jie Wong
Title: Refinements of Strong Multiplicity One for GL(2)

Speaker: Aniket Joshi
Title: Hecke operators on vector-valued modular forms

Speaker: Allysa Lumley
Title: Distribution of values of L-functions in the critical strip - Function Field version

Speaker: Michael Bennett
Title: Differences Between Perfect Powers (Plenary)

Speaker: Sourabh Das
Title: An explicit version of Chebotarev's density theorem

Speaker: Arno Berger
Title: Digits, dynamics, and Benford's Law

Speaker: Qing Zhang
Title: Arthur packets for sub-regular unipotent representations of G2

Speaker: Eric Roettger
Title: Some Primality Tests Constructed from a Cubic Extension of the Lucas Functions

Speaker: Abid Ali
Title: Gindikin-Karpelevich Finiteness for Local Kac-Moody Groups

Speaker: Quanli Shen
Title: The fourth moment of quadratic Dirichlet L-functions

Speaker: Michael Jacobson, Jr.
Title: Statistical Analysis of Aliquot Sequences