

Department of Mathematics, BGU

Mathematics Excellence Day

The Department of Mathematics and the Center of Advanced Studies in Mathematics

announce a

Mathematics Excellence Day

to honor 2022 Wofl prize laureate Prof. George Lusztig (MIT) and to award the *Noriko Sakurai fellowship*, the *Gauchman excellence scholarship* and the *Zabey prize*

Professor Miriam Cohen

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and the Center of Advanced Studies in Mathematics
announce a Mathematics Excellence Day**

**to honor 2022 Wolf prize laureate Prof. George Lusztig (MIT)
and to award the Noriko Sakurai fellowship,
the Gauchman excellence scholarship
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Sunday, June 19 at 13:15 at the Deichmann building for Mathematics (58), Seminar room -101

Program:

13:15-14:15 Buffet Lunch

14:15 Opening remarks:

Prof. Miriam Cohen,

Director of the Center of Advanced Studies in Mathematics

Prof. Daniel Sternheimer,

Rikkyo (Japan) and Bourgogne (France) Universities

Dr. Ruth Blatt, on behalf of Gauchman family

Ms. Reut Inon-Berman, the director general of the Wolf Foundation

14:30 Honorary lecture:

Prof. George Lusztig, MIT, the winner of The Wolf Prize in Mathematics, 2022

Title: "Weyl's dimension formula, revisited."

Abstract: Let G be a compact connected Lie group. The irreducible representations of G were classified by E.Cartan; their character and dimension were described by H.Weyl. The formula of Weyl expresses the dimension as a quotient of two integers, the result being not obviously an integer. A later formula of Kostant expresses the dimension as a difference of two integers, the result being not obviously positive. We will describe a third formula in which the result is a positive integer.

15:30 Dr. Inna Entova-Aizenbud, Introducing the recipient of the Noriko Sakurai prize

15:35 The 2022 Noriko Sakurai fellowship award and a lecture

by *Dr. Alexander Charles Sherman*, recipient of the Noriko Sakurai fellowship

Title: Representation theory of supergroups: analogies with modular representation theory

Abstract: We introduce the general linear supergroup over the complex numbers, along with its category of representations. Although this category is very complicated, analogies may be drawn between it and the categories of representations of complex reductive groups, and of finite groups in positive characteristic. We discuss recent successes in pushing the boundaries of the latter analogy, and some consequences. The main tools come from both algebraic and differential supergeometry, which we will hint at.

15:45 Prof. Daniel Berend, Introducing the recipient of the Hillel Gauchman fellowship

15:50 The 2022 Hillel Gauchman excellence scholarship and a lecture

by *Ms. Dina Barak*, recipient of the Hillel Gauchman fellowship

Title: The Coupon Collector's Problem -- Applications

Abstract : Our starting point is the coupon collector's problem (CCP). Its formulation is as follows: How many drawings are needed on average in order to complete a collection of n types of coupons, if at each step a single coupon is drawn uniformly randomly, independently of all the other drawings?

We have studied generalizations and applications of CCP in cyber security.

We have also studied simulating the process rapidly.

16:00 Prof. Eitan Sayag, Introducing Mr. Guy Shtotland, the recipient of the Zabey prize

16:05 a lecture by Mr. Guy Shtotland

You are cordially invited

Professor Miriam Cohen and Professor Amnon Besser

Time: *Jun ,19 ,16:30—13:15 2022*

Location: *Deichmann building for Mathematics ,(58) Seminar room 101-*

Web: *<https://www.math.bgu.ac.il/research/events/excellence2022>*