IMU 2019 Annual Meeting – Titles and Abstracts

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Plenary talks:

10:00-10:45 Plenary talk, Ron Peled (Tel-Aviv University)
Title: The proper way to color a grid

Abstract:

We consider the task of coloring the vertices of a large discrete box in the integer lattice Z^d with q colors so that no two adjacent vertices are colored the same. In how many ways can this be done? How does a typical coloring look like? What is the proportion of proper colorings in which two opposite corners of the box receive the same color? Is it about one in q?

We discuss these questions and the way their answers depend on the dimension d and the number of colors q, presenting recent results with Yinon Spinka and with Nishant Chandgotia, Scott Sheffield and Martin Tassy. Motivations are provided from statistical physics (anti-ferromagnetic materials, square ice), combinatorics (proper colorings, independent sets) and the study of random Lipschitz functions on a lattice.

12:00-12:45 Plenary talk, Karim Adiprasito (Hebrew University)
Title: Dots, diagrams and dictionaries

Abstract:

Discrete objects have recently come to enjoy the same structural theory that numbers have been enjoying for a long while now. But while numbers now are embedded within algebra and analysis, the more flexible combinatorial structures have not yet achieved a similar depth in theory.

I will propose a program that aims to give combinatorial structures a similarly wholesome embedding to the one that number theory now enjoys, and discuss how recent developments, such as the combinatorial uses and proofs of Lefschetz and Hodge type theorems, fit into this program.

Algebra Session (Organizers: Lior Bary-Soroker and Eitan Sayag)

14:20 – 14:50 Aner Shalev (Hebrew University)
Title: Girth, diameter and random Cayley graphs

Abstract:

We study the girth of Cayley graphs of finite classical groups G on random sets of generators. Our main tool is an essentially best possible bound we obtain on the probability that a given word w takes the value 1 when evaluated in G in terms of the length of w, which has additional applications.

We also study the girth of random directed Cayley graphs of symmetric groups, and the relation between the girth and the diameter of random Cayley graphs of finite simple groups.

15:00-15:30 Ofir Gorodetsky (Tel-Aviv University)
Title: Random matrix theory over finite fields

Abstract:

Draw a random matrix A from the unitary group U_n(C) according to the Haar measure. What is the distribution of the trace of A, and of powers of A, as n goes to infinity? Diaconis and Shahshahani have studied this question, showing that the traces, normalized appropriately, converge in distribution to i.i.d complex normal variables.

We consider this question in the setting of finite fields: Drawing a matrix from U_n(F_p) or other classical group over a finite field (e.g. SL_n(F_p)), what is the distribution of traces as n goes to infinity? We show that one obtains i.i.d uniform random variables taking values in F_p. We will explain our results, and compare with the characteristic-zero situation.

Joint work with Brad Rodgers.

16:20-16:50 Shifra Reif (Bar-Ilan University)
Title: The Grothendieck ring for finite-dimensional representations of Lie superalgebras.

Abstract:

A fundamental link between algebraic combinatorics and representation theory is the isomorphism between the ring of symmetric Laurent polynomials and the ring of finite-dimensional representations of the general linear Lie algebra. This ring is called the Grothedieck ring and has a similar description for all simple Lie algebras. The description of the Grothendieck ring for basic Lie superalgbras was given only in 2007 by Sergeev and Veselov.

In this talk, I will explain these isomorphisms and describe the Grothendieck ring for a Lie superalgebra which is not basic, namely the periplectic Lie superalgebra p(n). Joint work with M. S. Im and V. Serganova.

17:00-17:30 Gal Binyamini (Weizmann Institute of Science)
Title: Tame geometry and Diophantine geometry

Abstract:

About 12 years ago Pila and Wilkie proved a powerful theorem on counting rational points in transcendental sets, using a combination of methods from logic and diophantine approximation. Over the past decade a deep connection between tame geometry and diophantine geometry grew around this theorem, leading to proofs for various diophantine conjectures of Manin-Mumford, Andre-Oort, Masser-Zannier and others.

I will review the Pila-Wilkie counting theorem and the basic strategy for many of its applications. If time permits I will also discuss some directions of ongoing research.

17:40-18:10 Avner Segal (Bar-Ilan University)
Title: Jacquet modules and irreducibility of parabolic induction

Abstract:

Determining the irreducibility of parabolic induction is one of the main problems in the representation theory of algebraic groups. In this talk I will demonstrate, via a number of examples, a method of proving the irreducibility of parabolic induction using Jacquet modules. This method is more effective for groups of large rank. In particular, it is being used successfully in a joint project with Hezi Halawi to determine the reducibility of degenerate principal series of exceptional groups of type E_n.

If time permits, I will explain how this method helps to study the structure of reducible parabolic induction.

Analysis Session (Organizers: Gidi Amir and Nir Lev)

14:20-14:50 Benjamin Weiss (Hebrew University)
Title: Entire functions as a dynamical system

Abstract:

The complex plane acts on the space of entire functions by translation. With the natural topology of uniform convergence on compact subsets, this action is continuous.
I will survey some of the results that have been obtained on the invariant probability measures and on the compact minimal subsets under this action.

15:00-15:30 Boaz Slomka (Weizmann Institute of Science)
Title: On Hadwiger's covering problem

Abstract:

A long-standing open problem, known as Hadwiger's covering problem, asks what is the smallest natural number N(n) such that every convex body in {\mathbb R}^n can be covered by a union of the interiors of at most N(n) of its translates. Despite continuous efforts, the best general upper bound known for this number remains as it was more than sixty years ago, of the order of {2n \choose n} n\ln n.

In this talk, I will present a new result in which we improve this bound by a sub-exponential factor. Our approach combines ideas from previous work with tools from asymptotic geometric analysis. As a key step, we use thin-shell estimates for isotropic log-concave measures to prove a new lower bound for the maximum volume of the intersection of a convex body K with a translate of -K. We further show that the same bound holds for the volume of K\cap(-K) if the center of mass of K is at the origin.

If time permits we shall discuss some other methods and results concerning this problem and its relatives.

Joint work with H. Huang, B. Vritsiou, and T. Tkocz

16:20-16:50 Avner Kiro (Tel-Aviv University)
Title: Power substitution in quasianalytic Carleman classes

Abstract:

In this talk, I will consider power substitutions in quasianalytic Carleman classes, i.e. equations of the form f(x)=g(x^k), where k>1 is an integer and f is a given function in a quasianalytic Carleman class. I will show that if g happens to be a smooth function, then g belongs to a quasianalytic class completely characterized in terms of bounds on the derivatives of g.

The talk is based on joint work with L. Buhovski and S. Sodin.

17:00-17:30 Gady Kozma (Weizmann Institute of Science)
Title: Irreducibility of random polynomials

Abstract:

Take a polynomial whose coefficients are random, i.i.d. and integer. What is the probability that it is irreducible over the rationals? This question, despite much progress over the last two years, is still unresolved. We will survey recent results.

Joint work with Lior Bary-Soroker and Dimitris Koukoulopoulos.

Applied Mathematics Session (Organizers: Haggai Katriel and Raz Kupferman)

14:20-14:50 Baruch Barzel (Bar-Ilan University)
Title: The spatio-temporal propagation of signals in complex networks

Abstract:

A major achievement in the study of complex networks is the realization that diverse systems, from sub-cellular biology to social networks, exhibit universal topological characteristics. Yet, such universality does not naturally translate to the dynamics of these systems, as dynamic behaviour cannot be uniquely predicted from topology alone. Rather, it depends on the interplay of the network's topology with the dynamic mechanisms of interaction between the nodes. Hence, systems with similar structure may exhibit profoundly different dynamic behaviour. We therefore seek a general theoretical framework to help us systematically translate topological elements into their predicted dynamic outcome. We present such a translation in the context of signal propagation, linking the topology of a network to its observed spatiotemporal spread of perturbative signals, capturing the network's role in propagating local information. For a range of nonlinear dynamic models, we predict that the propagation rules condense into three highly distinctive universality classes, characterized by the interplay between network paths, degree distribution and the interaction dynamics. As a result, classifying a system's intrinsic interaction mechanisms into the relevant dynamic regime allows us to systematically translate topology into dynamic patterns of information propagation.
Nature Physics 15, 403 (2019)
Nature Communications 8, 2181 (2017) .

15:00-15:30 Elihu Olami (Hebrew Univeristy)
Title: Homogenization of edge dislocations via de-Rham currents

Abstract:

Edge dislocations are material defects: atomic discrepancies in a material lattice structure. In this talk, we present a geometric model for edge-dislocations using (layering) 1-forms and their singular counterparts, de-Rham currents. Isolated edge-dislocations are represented by 1-forms which are smooth and closed outside a singularity segment. A smooth distribution of dislocations is represented by a (globally) smooth non-closed 1-form. We prove a homogenization result for edge dislocations; every smooth distribution of dislocations is a limit (in the sense of currents) of arrays of isolated dislocations. We also define the notion of singular torsion and study its relation to the defect structure and homogenization process.

This is a joint work with Raz Kupferman.

16:20-16:50 Neta Rabin (Afeka Academic College of Engineering)
Title: Multi-scale approximation and extension of functions using Laplacian pyramids

Abstract:

Modeling and learning functions, which are defined on scattered, high-dimensional datasets, is a common task that arises in many applications. In this talk, we describe a multi-scale algorithm named Laplacian pyramids for approximating and extending such functions. The algorithm smoothes the target function by automatically selecting the optimal resolution (stopping scale) adapted to the data and its noise. In addition, we describe a recent extension of this approach for processing matrix type data, where the Laplacian pyramids evoked in a two-directional manner and applied for data imputation.

17:00-17:30 Tatiana Savin (Ohio University)
Title: Hele-Shaw two-phase flow driven by line distributions of sinks/sources and a uniform change of the the cell's gap

Abstract:

A Hele-Shaw cell is a pair of parallel plates separated by a small gap. The motion of the fluids sandwiched between the plates could be driven by a pressure gradient, gravity, fluid injection, and an external potential fields. This has been the subject of numerous investigations. The reason for the intense interest is the mathematical relation to modeling of several applied problems in material science and fluid dynamics, as well as to modeling of biological processes involving moving fronts of populations or tumors. These latter processes include cancer, biofilms, wound healing, granulomas, and atherosclerosis.

In this talk we consider two fluids with different viscosities in a Hele-Shaw cell. The evolution of the interface, separating the fluids, is driven by a uniform change in the gap width of the cell as well as by the presence of some special distributions of sinks and sources located in both the interior and exterior domains. The effect of surface tension is neglected.

Using the Schwarz function approach and a two-phase mother body, we give examples of exact solutions when the interface belongs to a certain family of algebraic curves.

17:40-18:10 Sagi Snir (University of Haifa)
Title: Using computational tools for piecing together small trees into the Large Tree of Life

Abstract:

The reconstruction of evolutionary trees (also known as "phylogenies") is central to many problems in Biology. With the explosion of molecular data being produced, a new program, "Assembling the Tree of Life", has set the goal of producing a highly accurate estimate of the evolutionary history of

all life on earth. Key to this goal is the ability to estimate very accurate trees on different groups of taxa (organisms), and then combine these different trees into a tree on the full dataset. This task, combining small trees into a big tree, is the supertree task– and no really accurate supertree method yet exists.

Quartets, trees over four taxa, are the most basic phylogenetic informational unit and therefore quartet based supertree is the simplest supertree task. Nevertheless, despite its simplicity, the problem lies at the root of many long open combinatorial phylogenetic problems, for which accurate answers seem very hard.

In a series of works we have developed graph theoretically based approaches for the quartet supertree and other related tasks. Our approach is based on a divide and conquer algorithm where our divide step uses a semi-definite programming (SDP) formulation of MaxCut in a graph representing relationships between the taxa. We also show theoretical guarantees as well as impossibility results for our approach over a large family of inputs where the best known result is a random tree.

Based on work with Raphy Yuster, Satish Rao, and Noga Alon. The talk is self contained and requires no prior knowledge in Biology.

Discrete Mathematics Session (Organizers: Martin Golumbic, Roy Meshulam and Shakhar Smorodinsky)

14:20-14:50 Chaya Keller (Technion)
Title: The structure of sets of vectors in the plane whose sums span a few directions

Abstract:

A classical theorem of Ungar (1982) asserts that any n non-collinear points in the plane determine at least 2[n/2] directions. That is, considering the points as vectors, at least 2[n/2] different directions are spanned by their differences. Jamison and Hill characterized the sets of points for which the minimum is attained.

In this talk we discuss the related problem of directions spanned by sums of n vectors in the plane, proposed by Balog and Roche-Newton (2015) in the context of sum-product theorems. Assuming that the vectors are pairwise independent, it is easy to show that the minimal number of directions is 2n-1 if all vectors are contained in the right half-plane, and 2n otherwise. We obtain a structural characterization of all sets of vectors for which the minimum is attained. In particular, we show that for any such set A, almost all elements of A must lie on the union of two quadrics.

Joint work with Rom Pinchasi.

15:00-15:30 Michael Simkin (Hebrew University)
Title: Combinatorial designs in random hypergraphs

Abstract:

A combinatorial design is a hypergraph exhibiting some form of regularity. Well-known examples include Steiner triple systems (triangle decompositions of K_n), Latin squares (triangle decompositions of $K_{n,n,n}$), regular graphs, and perfect matchings.
A classical theorem of Erd\H{o}s and R\'enyi is that the threshold for the appearance of perfect

matchings in $G(n;p)$ is the same as the threshold for the disappearance of isolated vertices. Viewing combinatorial designs as generalizations of perfect matchings, we ask: What is the threshold for the appearance of a given combinatorial design in a binomial random hypergraph? In particular, does it correspond to the disappearance of an obvious local obstruction? For example, does a random 3-graph contain a (spanning) Steiner triple system as soon as every pair of vertices is contained in a triangle? Despite several recent breakthroughs, most of these questions remain open.

Focusing on the case of Latin squares, we will show sharp threshold results for the appearance of approximate Latin squares. We will also use Keevash's method of randomized algebraic construction to bound from above the threshold for the appearance of Latin squares in random hypergraphs.

Partly based on joint work with Zur Luria.

16:20-16:50 Frank Mousset (Tel-Aviv University)
Title: The minrank of random graphs over arbitrary fields

Abstract:

The minrank of a graph on G on the vertex set {1,…,n} over a field F is the minimum possible rank of an n-by-n matrix M over F that has nonzero diagonal entries and satisfies M(i,j) = 0 whenever i and j are distinct nonadjacent vertices of G. This notion arises in several different contexts: the study of the Shannon capacity of a graph, the index coding problem, and the study of unit distance graphs. I will talk about the minrank of the Erdős-Rényi random graph G(n,p) and present a result stating that the minrank of G(n,p) over any field F is in the order of n log(1/p)/log n with high probability. For the case where F is the field of real numbers, this answers a question raised by Knuth in 1994.

This is joint work with Noga Alon, Igor Balla, Lior Gishboliner, and Adva Mond.

17:00-17:30 Ido Nachum (Technion)
Title: Learning symmetric functions with neural networks

Abstract:

Initializing the weights of neural networks close to zero is the common practice for training them. This practice fails if the network tries to learn the parity function. Contrastingly, using the right initialization, we show that the parity function and any other \emph{symmetric} function, i.e. a function that is invariant under permutations of its input (the corresponding group is $\mathbb{S}_n$), can be learned with neural networks. This demonstrates the importance of choosing an initialization (or an architecture) that accommodates the symmetries of a given learning problem. A natural question now follows, what other groups can be used to generate effective convergence guarantees and generalization bounds?

17:40-18:10 Shay Mozes (IDC Herzliya)
Title: Almost optimal distance oracles for planar graphs.

Abstract:

We present new tradeoffs between space and query-time for exact distance oracles in directed weighted planar graphs. These tradeoffs are almost optimal in the sense that they are within polylogarithmic, subpolynomial or arbitrarily small polynomial factors from the naive linear space, constant query-time lower bound. These tradeoffs include:

(i) an oracle with space $O(n^{1+\epsilon})$ and query-time $\tilde O(1)$ %\footnote{The $\tilde O(\cdot)$ notation hides polylogarithmic factors.} for any constant $\epsilon>0$,

(ii) an oracle with space $\tilde O(n)$ and query-time $O(n^{\epsilon})$ for any constant $\epsilon>0$, and (iii) an oracle with space $n^{1+o(1)}$ and query-time $n^{o(1)}$.

Based on joint work with Panagiotis Charalampopoulos, Pawel Gawrychowski and Oren Weimann (https://arxiv.org/abs/1811.01551 (https://arxiv.org/abs/1811.01551)) to appear in STOC 2019.

Geometry and Topology Session (Organizers: David Blanc and Ruth Lawrence-Neimark)

14:20-14:50 Lior Yanovski (Hebrew University)
Title: Higher semi-additivity in chromatic homotopy theory

Abstract:

In ordinary algebra, characteristic zero behaves differently from characteristic p>0, partially due to the possibility to symmetrize finite group actions. In particular, given a finite group G acting on a rational vector space V, the "norm map" from the co-invariants V_G to the invariants V^G is an isomorphism (in marked contrast to the positive characteristic case). In the chromatic world, the Morava K-theories provide an interpolation between the zero characteristic (represented by rational cohomology) and positive characteristic (represented by F_p cohomology). A classical result of Hovey-Sadofsky-Greenlees shows that the norm map is still an isomorphism in these "intermediate characteristics". A subsequent work of Hopkins and Lurie vastly generalises this result and puts it in the context of a new formalism of "higher semiadditivity" (a.k.a. "ambidexterity").

I will describe a joint work with Tomer Schlank and Shachar Carmeli in which we generalize the results of Hopkins-Lurie and extend them among other things to the telescopic localizations and draw some consequences (along the way, we obtain a new and more conceptual proof for their original result).

15:00-15:30 Surojit Ghosh (Haifa University)
Title: Equivariant cell complexes and freeness theorem in $RO(G)$-graded cohomology theory

Abstract:

We discuss analogues of the theorem "A CW complex with even dimensional cells has free homology" for G-spaces. For the cyclic group of order p, the "freeness theorem" was first proved by Lewis, and subsequently, the result was improved by Ferland -Lewis.

We generalize this result to other cyclic groups (in joint work Samik Basu).

16:20-16:50 Chandrika Sadanand (Technion)
Title: You can "hear" the shape of a polygonal billiard table

Abstract:

Consider a polygon-shaped billiard table on which a ball can roll along straight lines and reflect off of edges infinitely. In work joint with Moon Duchin, Viveka Erlandsson and Chris Leininger, we have characterized the relationship between the shape of a polygonal billiard table and the set of possible infinite edge-itineraries of balls travelling on it.

In this talk, we will explore this relationship and the tools used in our characterization (notably a new rigidity result for flat cone metrics).

17:00-17:30 Yaniv Ganor (Tel-Aviv University)
Title: Rigidity and flexibility phenomena in Poisson bracket invariants

Abstract:

Symplectic manifolds are the natural setting for classical mechanics. The symplectic structure induces a Lie algebra structure on the space of smooth functions on a symplectic manifold, called the Poisson bracket.

An approach known as Symplectic function theory, suggests to study symplectic manifolds via the lens of the Poisson bracket and its interplay with the supremum norm of functions.

Poisson bracket invariants for triples and quadruples of sets were introduced by Buhovski, Entov and Polterovich (2012) as a means to study the C^0 symplectic topology of closed subsets of a symplectic manifold. They were found to have applications to the study of Hamiltonian chords (Entov-Polterovich, 2016) and were also applied to the study of a symplectic topological invariant of Lagrangian submanifolds (Entov-G-Membrez, 2016). Interestingly, they manifest various aspects of both rigid and flexible phenomena.

In this talk we will survey various rigidity and flexibility behaviors of Poisson bracket invariants of closed sets in symplectic manifolds, and present a recent result (G, 2018) answering the question "To what extend do to they depend on the union of the four sets in the quadruple?", to which the answer is homotopically flavored – they depend on the union together with some homotopical data encoding the manner of decomposition into four sets, up to homotopy.

No symplectic background is assumed, all terms will be defined and explained during the talk.

17:40-18:10 Mikhail Katz (Bar-Ilan University)
Title: Systolically extremal nonpositively curved surfaces are flat with finitely many singularities

Abstract:

The regularity of systolically extremal surfaces is a notoriously difficult problem already discussed by M. Gromov in 1983, who proposed an argument toward the existence of L^2 -extremizers exploiting the theory of r -regularity developed by P. A. White and others by the 1950s. We propose to study the problem of systolically extremal metrics in the context of generalized metrics of nonpositive curvature. A natural approach would be to work in the class of Alexandrov surfaces of finite total curvature, where one can exploit the tools of the completion provided in the context of Radon measures as studied by Reshetnyak and others. However the generalized metrics in this sense still don't have enough regularity. Instead, we develop a more hands-on approach and show that, for each genus, every systolically extremal nonpositively curved surface is piecewise flat with finitely many conical singularities. This result exploits a decomposition of the surface into flat systolic bands and nonsystolic polygonal regions, as well as the combinatorial/topological estimates of Malestein-Rivin-Theran, Przytycki, Aougab-Biringer-Gaster and Greene on the number of curves meeting at most once, combined with a kite excision move. The move merges pairs of conical singularities on a surface of genus g and leads to an asymptotic upper bound g^{4+\epsilon} on the number of singularities.

See https://arxiv.org/abs/1904.00730 (https://arxiv.org/abs/1904.00730)

Mathematical Education Session (Organizers: Boris Koichu and Alon Pinto)

All talks in the math education session will be delivered in Hebrew.

14:20-14:50 N. Keller and E. Sheiner (Bar-Ilan University)
Title: Academic studies during high school: the Academic Program for Youth at Bar-Ilan University as an example

Abstract:

In Israel, several hundreds of students complete every year their BSc degree in Mathematics or in Computer Science by the age of 19. Most of them study in special programs, in which they do the matriculation exam (i.e., Bagrut) in mathematics at their 10th grade, and then study a large part of the first degree in parallel with high-school studies. The number of students participating in these programs continues growing rapidly.

The programs give rise to various challenges and interesting dilemmas, some of them related to dealing with secondary-tertiary transition (STT) – and especially, STT of very talented but very young and immature students.

In this talk we shall present some of these dilemmas, via observing a concrete example: the program for Youth at Bar-Ilan university, which has an almost 20-year experience in the field, and is currently the largest such program in Israel, with more than 100 students every year.

15:00-15:30 Y. Godin (Hebrew University); correspondent: Tommy Dreyfus (Tel-Aviv University)
Title: Supporting first year infinitesimal calculus students

Abstract:

The transition from high school to university mathematics is problematic for the majority of the Israeli students, and the problems are particularly arduous in the students' first course in differential and integral calculus.

In this session, I will briefly sketch some of the main reasons underlying Israeli students' difficulties in this course; I will also describe in some detail and evaluate steps that have been implemented at the Einstein Institute of Mathematics to alleviate the problems while trying to preserve the academic level.

16:20-16:50 A. Berman (Technion)
Title: A problem-based course as a bridge between high school mathematics and university mathematics

Abstract:

Many newcomers to university suffer from the first-year shock. For some, the background is not sufficient. For many, the need to prove (and the enjoyment of proving) is a surprise. Most of them solved in high school exercises, but not problems.

In my talk, I will discuss several ways to deal with this shock and in particular describe a problem-based course that may suggest some remedy.

17:00-17:30 A. Pinto (Weizmann Institute of Science)
Title: Fostering learning of informal mathematics in a formal course: what are the key challenges for instructors, and what can be done about them?

Abstract:

A recent international survey among nearly two hundred mathematicians indicates that many mathematicians consider student transition from school mathematics to university mathematics an issue of concern at their departments. Moreover, most of the mathematicians that participated in this survey, and in particular the Israeli participants, stated that challenges related to student transition at their departments have increased over the last decade. The understanding that there exists a divide between school and university mathematics is not new. Already in 1906, Felix Klein published the first volume of his "Elementarmathematik vom höheren Standpunkt aus" (Elementary Mathematics from a Higher Standpoint). In this book, Klein identified a discontinuity between mathematics as experienced at school and as practiced at university. One may wonder, why after more than a century, not only that the gap between school and university mathematics still exists, it even seems to be widening. Two widespread explanations for this phenomenon are that the mathematical preparation of students entering university is insufficient (and getting worse over time), and that doing mathematics on an advanced level is inherently difficult and only suitable to a relatively small proportion of the student population.

In my talk I will argue why these answers are not satisfying, on the basis of selected findings from several case studies that investigated how university mathematics instructors address, explicitly or implicitly, student transition in their teaching. I will highlight key pedagogical challenges for instructors, and suggest steps that could be taken towards assuming greater responsibility over students' transition.

17:40-18:10 B. Koichu (Weizmann Institute of Science)
Title: Approaches to dealing with the secondary-tertiary transition: examples from an international survey and discussion

Abstract:

An international survey among mathematicians on secondary-tertiary transition (STT), which is also mentioned in Alon Pinto's talk, contains the following question: "Can you describe in rough detail a realistic project that, given appropriate support, could make things better in terms of STT?" Currently, 93 mathematicians answered this question, with the answers ranging from a single word ("no"), to long paragraphs that outline key challenges and alternative solutions.

A sample of various answers to this question from different countries will be presented at the beginning of the session. The main part of the session will be devoted to an open discussion with the audience. The goal of the discussion is to lay foundations for further action in relation to STT in Israel.

TAGS IMU, ISRAEL MATHEMATICAL UNION, MATHEMATICS •