50 Years of Seminar for Analysis and Foundations of Mathematics

led by Academician Bogoljub Stanković

International Conference

Mathematical Logic and General Topology

Novi Sad, September 5-8, 2012

tcm2012.pmf.uns.ac.rs/LogTop.html

LogTop 2012

Book of Abstracts



Department of Mathematics and Informatics
University of Novi Sad
2012

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INFTY

New frontiers of infinity: mathematical, philosophical, and computational prospects
An ESF Research Networking Programme

Human beings have been always fascinated by infinity. From ancient Greece, philosophers and mathematicians have studied its nature and been bewildered by the paradoxes that defy its rational comprehension. In medieval times, infinity was thought of as the ultimate attribute of God, and as such totally unassailable to humans. But a new mathematical theory of the infinite, the calculus of Leibniz and Newton, was precisely what made possible the birth of modern science. Mathematical Analysis, a symphony of the infinite according to Hilbert, was at the heart of critical developments in Physics during the nineteenth century, and up to the present day. At the turn of the twentieth century, following the dramatic discoveries of Cantor on transfinite numbers – the first true investigation of the infinite realm – it became possible, and necessary, to establish a purely mathematical theory of infinity. This was achieved by Zermelo, Fraenkel, Gödel, von Neumann, and others, culminating in the current ZFC system of modern set theory.

As an extremely general theory, whose objects of study are the abstract infinite sets, ZFC serves as the standard foundation of mathematics, and therefore has great significance for all of science. Set-theoretical research has been a continuous source of original ideas and results, as well as of deep and highly technical tools that are now finding applications in many areas of mathematics, computation, and even natural and social sciences. This is the golden age of set theory. Major breakthroughs have been made recently and new ones are expected.

The main objective of the Programme is to stimulate the exchange of ideas among researchers pursuing different approaches to infinity: mathematical, philosophical, and computational. Its aim is to promote cooperation at European and international levels, scientific mobility and integration of national activities and groups with complementary backgrounds and expertise, and training of young researchers.

Foreword

The Seminar for analysis and foundation of mathematics at the Novi Sad University was founded by Professor Bogoljub Stanković in 1962. More than hundred mathematicians of the Novi Sad University started their scientific work through this seminar. A large number of distinguished visitors participated at the seminar as well. From the very beginning a vast scope of mathematical topics was covered, starting from integral transforms and equations, theory of generalized functions, foundations of mathematics, general topology, qualitative analysis of differential equations, generalized asymptotics, numerical analysis of ODE, fixed point theory, etc.

At the present time the Seminar assembles enlarged mathematical interest of the researchers participating at the three research projects. Functional analysis topics, including Generalized functions as framework for singular ODE and PDE, Microlocal analysis and ΨDO, Integral transforms and asymptotics, Time-frequency analysis (research led by Academician Stevan Pilipović), Mathematical logic and general topology (research led by Professor Miloš Kurilić) and Differential equations with fractional derivatives and their applications (research led by Academician Teodor M. Atanacković).

The Department of Mathematics and Informatics, Department of Mechanics and the Center for Mathematical Research of Nonlinear Phenomena at Novi Sad University, and the Scientific and Organizing Committees are pleased to welcome you to the celebration of 50 years of Seminar for analysis and foundation of mathematics, successfully led by Academician Bogoljub Stanković.

The main programme consists of three conferences:

Topics in PDE, Microlocal and Time-frequency Analysis, September 3-8, 2012

Contemporary Problems of Mechanics and Applied Mathematics, September 3-6, 2012

Mathematical Logic and General Topology, September 5-8, 2012

Organizing Committee

Invited lectures

Joan Bagaria	ICREA, University of Barcelona, Spain
Natasha Dobrinen	University of Denver, USA
Mirna Džamonja	University of East Anglia, UK
Sy Friedman	Kurt Gödel Research Center for Mathematical Logic, University of Vienna, Austria
István Juhász	Alfréd Rényi Institute of Mathematics, Hungarian Academy of Sciences, Budapest, Hungary
Jordi López-Abad	ICMAT (CSIC, Madrid), Spain
Predrag Tanović	Mathematical Institute of the Serbian Academy of Sciences and Arts, Belgrade, Serbia

Participants

Bojan Bašić	Department of Mathematics and Informatics, University of Novi Sad, Serbia
Marija Boričić	Faculty of Organizational Sciences, University of Belgrade, Serbia
Dragan Doder	University of Belgrade, Faculty of Mechanical Engineering, Serbia
Ahmad Farhat	University of Wroclaw, Poland
Paolo Giordano	Fakultät für Mathematik, University of Vienna, Austria
Milan Grulović	Department of Mathematics and Informatics, University of Novi Sad, Serbia
Nebojša Ikodinović	University of Belgrade, Faculty of Mathematics, Serbia
Dejan Ilić	University of Belgrade, Faculty of Transportation and Traffic Engineering, Serbia
Miloš Kurilić	Department of Mathematics and Informatics, University of Novi Sad, Serbia
Boriša Kuzeljević	Mathematical Institute of the Serbian Academy of Sciences and Arts, Belgrade, Serbia
Rozalia Madarasz	Department of Mathematics and Informatics, University of Novi Sad, Serbia
Nenad Morača	Department of Mathematics and Informatics, University of Novi Sad, Serbia
Aleksandar Pavlović	Department of Mathematics and Informatics, University of Novi Sad, Serbia
Aleksandar Perović	University of Belgrade, Faculty of Transportation and Traffic Engineering, Serbia
Jan Stary	Czech Technical University, Prague, Czech Republic
Boris Šobot	Department of Mathematics and Informatics, University of Novi Sad, Serbia
Dimitris Vlitas	Université Denis-Diderot Paris 7, France
Thilo Weinert	Hausdorff Research Centre for Mathematics, Bon, Germany

Wednesday, September 5

09.00-09.45 Registartion

09.45-10.00 Welcome words

Morning session

10.00-10.55 **S. D. Friedman** *A real that kills the GCH everywhere*

11.00-11.30 Coffee break

11.30-12.25 **N. Dobrinen** *Tukey types of ultrafilters*

12.30-12.55 **J. Stary** *Coherent structures on Boolean algebras*

13.00-15.00 Lunch break

Afternoon session

15.00-15.55 **P. Tanović** *Vaught's conjecture for theories with Skolem functions*

16.00-16.25 **P. Giordano** *Ultrafilter sets smaller than their complements*

16.30-16.55 Coffee break

Evening session

16.55-17.20 **A. Pavlović** *Characterization of closed sets in the topology* $\mathcal{O}_{\lambda_{ls}}$

17.25-17.50 **B. Šobot** *Random graphs and independent families*

17.55-18.55 **O. Hadžić** *50 Years of Seminar for Analysis and Foundations of Mathematics*

Thursday, September 6

Morning session

10.00-10.55 **J. Bagaria** *Topologies on ordinals and stationary reflection*

11.00-11.30 Coffee break

11.30-12.25 **J. López-Abad** *Finite families of finite sets and the Banach-Saks property*

12.30-12.55 **A. Farhat** *Hyperspaces as partially ordered sets*

13.00-15.00 Lunch break

Afternoon session

15.00-15.55 **M. Kurilić** *Towards a forcing-related classification of relational structures*

16.00-16.25 **T. Weinert** *Asymmetric partition relations between ordinal numbers*

16.30-16.55 Coffee break

Evening session

16.55-17.20 **B. Kuzeljević** *Maximal chains of isomorphic subgraphs of the Rado graph*

17.25-17.50 **D. Doder** *Some recent advances in probability logic*

17.55-18.20 **M. Boričić** *On probabilistic inference rules*

18.25-18.50 **N. Ikodinović** *Probability logics and their applications*

20.00- **Conference dinner**

Friday, September 7

Morning session

10.00-10.55 **I. Juhász** *Resolvability*

11.00-11.30 Coffee break

11.30-12.25 **M. Džamonja** *Universality problems in the theory of Banach spaces*

12.30-12.55 **D. Vlitas** *An infinite self dual theorem*

13.00-14.30 Lunch break

14.30- **Visit to Petrovaradin fortress**

ABSTRACTS

Joan Bagaria

Thu 6 Sep: 10.00-10.55

ICREA, University of Barcelona, Spain
joan.bagaria@icrea.cat

Topologies on ordinals and stationary reflection

We define a sequence of natural topologies on a given limit ordinal δ, extending the usual interval topology, and we give a characterization of the conditions δ must satisfy for the topologies to be non-discrete. A recent result, in a joint work with Menachem Magidor and Hiroshi Sakai, shows that in the constructible universe the non-isolated points in the $n+1$-th topology of the sequence are precisely those ordinals whose cofinality is a Π^1_n-indescribable cardinal.

Marija Boričić

Thu 6 Sep: 17.55-18.20

Faculty of Organizational Sciences, University of Belgrade, Serbia
marija.boricic@fon.bg.ac.rs

On probabilistic inference rules

We present how, inspired by statistical syllogism, probabilistic versions of basic logical inference rules emerge and, in the sequel, we give their survey. For instance, if A, B and C are propositional formulae with the following probabilities of their truthfulness $P(A) = a$, $P(B) = b$ and $P(C) = c$, then, the probabilistic versions of the hypothetical syllogism inference rule could be given as follows:

$$\frac{P(A \to B) = r \quad P(B \to C) = s}{\max\{r - a, r + s - 1\} \leq P(A \to C) \leq \min\{s + 1 - a, r + c\}}$$

in Hailperin–style, and

$$\frac{P(A \to B) \geq 1 - \varepsilon \quad P(B \to C) \geq 1 - \varepsilon}{P(A \to C) \geq 1 - 2\varepsilon}$$

for each $0 \leq \varepsilon \leq \frac{1}{2}$, in Suppes–style. These rules contain the probabilistic versions of both *modus ponens* (see [2, 3]), for $a = 1$, and *modus tollens* rule (see [4]), for $c = 0$. On the other side, in case when implication $A \to B$ is interpreted as conditional probability $P(B|A)$, although the probabilistic versions of *modus ponens* and *modus tollens* are quite natural (see [1, 2, 3, 4]), there are arguments that probabilistic versions of the hypothetical syllogism inference rule lose their usual logical sense. We will show how a complete proof–theoretical treatment of probability operators, considered as a part of a polymodal language containing formulae of the form A^α, with the intended meaning that $P(A) \in \alpha$, where α is an element of a finite family of subsets of $[0, 1]$, can be based on this approach.

References

[1] A. M. Frisch, P. Haddawy, *Anytime deduction for probabilistic logic*, Artificial Intelligence 69 (1993), pp. 93–122.

[2] T. Hailperin, *Probability logic*, Notre Dame Journal of Formal Logic 25 (1984), pp. 198–212.

[3] P. Suppes, *Probabilistic inference and the concept of total evidence*, in J. Hintikka and P. Suppes (eds.), Aspects of Inductive Inference, North–Holland, Amsterdam, 1966, pp. 49–55.

[4] C. G. Wagner, *Modus tollens probabilized*, British Journal for the Philosophy of Science 54(4) (2004), pp. 747—753.

Natasha Dobrinen

Wed 5 Sep: 11.30-12.25

University of Denver, USA
Natasha.Dobrinen@du.edu

Tukey types of ultrafilters

Joint work with Stevo Todorčević

The Tukey ordering was first introduced in the study of Moore-Smith convergence in topology, and soon proved useful in the more general study of ordered structures. On the class of directed partial orderings, Tukey equivalence is the same as cofinal equivalence. Tukey types make possible classifications of certain ordered structures for which classification up to isomorphism is too fine to reveal any real information. A prime example of this is Todorcevic's theorem that, assuming PFA, there are exactly 5 Tukey types of directed partial orderings of cardinality $\aleph_1$.

When restricting attention to ultrafilters as directed posets, Tukey types turn out to be a coarsening of the well-studied Rudin-Keisler equivalence classes. In this talk, we will give an overview of recent work on the Tukey types of ultrafilters. We will present some of the currently known structure theorems about Tukey types within the class of p-points and iterated Fubini products of p-points. Some new topological Ramsey spaces and Ramsey-classification theorems, generalizing the Erdös-Rado and Pudlak-Rödl canonization theorems for the Ellentuck space, will be presented, as well as their applications to completely classifying the Rudin-Keisler (isomorphism) types within the Tukey types of the related ultrafilters. Most of the work in this talk is joint with Stevo Todorcevic.

Dragan Doder

Thu 6 Sep: 17.25-17.50

University of Belgrade, Faculty of Mechanical Engineering, Serbia
ddoder@mas.bg.ac.rs

Some recent advances in probability logic

Joint work with Aleksandar Perović, Zoran Ognjanović and Miodrag Rašković

In this talk we will give a short overview of our recent work in probability logic. The emphasis will be on probabilistic representations of certain nonmonotonic consequence relations, measuring of inconsistent theories and axiomatization of modal probabilistic reasoning.

Mirna Džamonja

Fri 7 Sep: 11.30-12.25

University of East Anglia, UK
h020@uea.ac.uk

Universality problems in the theory of Banach spaces

We review some known and some recent results about the embeddings of Banach spaces and present a conjecture relating to the universality number of the relevant classes.

Ahmad Farhat

Thu 6 Sep: 12.30-12.55

University of Wroclaw, Poland
Ahmad.farhat@math.uni.wroc.pl

Hyperspaces as partially ordered sets

A hyperspace of a space X is a family of subsets of X, topologized in some way. The exponential space $exp(X)$, for instance, is the set of all nonempty closed subsets of X with the Vietoris topology. Forgetful about the topology, we may as well treat $exp(.)$ as a functor whose range is the category of partially ordered sets (the order being (reverse)-set inclusion). This allows us to study the interplay between the topological and order structures. In particular, we are interested in the interrelation between the topology on a space X and the combinatorial structure of $exp(X)$ as a partially ordered set. This talk is mainly intended as an introduction to research in this area.

Sy Friedman

Wed 5 Sep: 10.00-10.55

Kurt Gödel Research Center for Mathematical Logic, University of Vienna, Austria
sdf@logic.univie.ac.at

A real that kills the GCH everywhere

Joint work with Mohammad Golshani

Assuming less than a strong cardinal, we show that it is possible to obtain a model of ZFC in which GCH fails at every infinite cardinal by adding a single real to a model of GCH. The proof uses work of Merimovich together with a method for coding a Prikry-product generic over a core model.

Paolo Giordano

Wed 5 Sep: 16.00-16.25

Fakultät für Mathematik, University of Vienna, Austria
paolo.giordano@univie.ac.at

Ultrafilter sets smaller than their complements

The common intuition of ultrafilter sets $A \in \mathcal{U}$ of an ultrafilter $\mathcal{U}$ on $\mathbb{N}$ describes the elements of $\mathcal{U}$ as "large sets", whereas their complements as "small sets". Analogously, the corresponding finitely additive measure μ is described saying that if a property holds in A and $\mu(A) = 1$, then it holds "almost everywhere". Of course, if both A and $\mathbb{N} \setminus A$ are infinite sets, they are both countable, and therefore we need a finer method to compare infinite sets if we want to give a more formal base to these intuitive statements.

We use the notion of natural density of $A \subseteq \mathbb{N}$ with respect to $B \subseteq \mathbb{N}$, i.e.

$$\rho(A, B) = \lim_{n \to +\infty} \frac{\mathsf{card}(A_{\leq n})}{\mathsf{card}(B_{\leq n})} \in \mathbb{R} \cup \{+\infty\}$$

(if the limits exists) to prove that in every ultrafilter $\mathcal{U}$ on $\mathbb{N}$ we have that

$$\forall \varepsilon \in \mathbb{R}_{>0}\, \exists S \in \mathcal{U} :\ \rho(S, \mathbb{N}) < \varepsilon.$$

For example, for $\varepsilon = 10^{-100}$ this gives that we can find an ultrafilter set $S \in \mathcal{U}$ such that $\rho(S, \mathbb{N}) < 10^{-100}$ and hence such that $\rho(\mathbb{N} \setminus S, \mathbb{N}) > 1 - 10^{-100}$. Note that $\rho(-, \mathbb{N})$ can be thought of as the (finite additive) probability to uniformly pick a number from $\mathbb{N}$.

The same result can be formulated if $\mathcal{U}$ is an ultrafilter on the real interval $[0, 1]$ and using the uniform probability distribution instead of the natural density $\rho(-, \mathbb{N})$.

For example, in case of an ultrapower construction of nonstandard analysis, this implies that we can find two hyperreals $x, y \in {}^*\mathbb{R}$ generated by sequences $(x_n)_n$ and $(y_n)_n$ such that $x = y$ as hyperreals, but the probability to find an index $n \in \mathbb{N}$ such that $x_n = y_n$ is practically zero.

Nebojša Ikodinović

Thu 6 Sep: 18.25-18.50

University of Belgrade, Faculty of Mathematics, Serbia
ikodinovic@matf.bg.ac.rs

Probability logics and their applications

Joint work with Miodrag Rašković, Zoran Marković and Zoran Ognjanović

The presentation deals with the proof-theoretical approach to probability logics and some possibilities to apply them, especially in nonmonotonic reasoning.

István Juhász

Fri 7 Sep: 10.00-10.55

Alfréd Rényi Institute of Mathematics, Hungarian Academy of Sciences, Budapest, Hungary
juhasz@renyi.hu

Resolvability

Let κ be a (finite or infinite) cardinal number. A topological space X is said to be κ-resolvable (resp. almost κ-resolvable) if there are κ dense sets in X that are pairwise disjoint (resp. almost disjoint w.r.t. the nowhere dense ideal on X). The space X is maximally resolvable iff it is $\Delta(X)$-resolvable, where

$$\Delta(X) = \min\{|G| : G \neq \emptyset \text{ open}\}.$$

In the first part of this talk we deal with the separation of various resolvability and almost resolvability properties. In the second part we describe results that deduce resolvability properties from certain topological properties. In particular, we present a recent joint result with M. Magidor that characterizes maximal resolvability of monotonically normal spaces in terms of maximal decomposability of ultrafilters. We also report on work in progress, joint with L. Soukup and Z. Szentmiklóssy, concerning the problem of Malychin that asks the following: How resolvable is a regular Lindelöf space in which every non-empty open set is uncountable?

Miloš S. Kurilić

Thu 6 Sep: 15.00-15.55

Department of Mathematics and Informatics, University of Novi Sad, Serbia
milos@dmi.uns.ac.rs

Towards a forcing-related classification of relational structures

We investigate the order theoretic and forcing related properties of the partial orderings of the form $\langle \mathbb{P}(\mathbb{X}), \subset \rangle$, where $\mathbb{X}$ is a relational structure and $\mathbb{P}(\mathbb{X})$ the set of the domains of its isomorphic substructures.

In particular, under CH, each poset of the form $\langle \mathbb{P}(\mathbb{X}), \subset \rangle$, where $\mathbb{X} = \langle \omega, \rho \rangle$ and ρ is a binary relation on ω, is forcing equivalent to one of the following: (A) $\mathbf{1}$ (the one element poset, a trivial forcing), (B) $\langle {}^{<\omega}2, \supset \rangle$, the Cohen forcing, (C) $P(\omega)/\mathrm{Fin}$, (D) $P(\omega)/\mathcal{I}$, where $\mathcal{I} \subset P(\omega)$ is a tall co-analytic ideal, (E) Something else. (E) implies that $\mathbb{X}$ is a divisible structure and that $\mathbb{P}(\mathbb{X})$ is a homogeneous nowhere dense suborder of $[\omega]^\omega$ having $\mathfrak{c}$-sized atomless separative quotient which is not σ-closed. (For example it can collapse $\mathfrak{c}$ to $\aleph_0$.)

Some results concerning the position of equivalence relations, linear orders, graphs, and partial orders in this realm will be presented. For example, if $\mathbb{X}$ is a countable scattered linear order, then the poset $\langle \mathbb{P}(\mathbb{X}), \subset \rangle$ has the separative quotient σ-closed and CH implies that $\langle \mathbb{P}(\mathbb{X}), \subset \rangle$ is forcing equivalent to $P(\omega)/\mathrm{Fin}$.

Boriša Kuzeljević

Thu 6 Sep: 16.55-17.20

Mathematical Institute of the Serbian Academy of Sciences and Arts, Belgrade, Serbia
borisa@mi.sanu.ac.rs

Maximal chains of isomorphic subgraphs of the Rado graph

Joint work with Miloš Kurilić

The partial order $\langle E(R) \cup \{\emptyset\}, \subset \rangle$, where $E(R) \subset [\omega]^\omega$ is the set of isomorphic subgraphs of the Rado graph R, is investigated. The order types of maximal chains in this poset are characterized as the order types of compact sets of reals having the minimum non-isolated.

Jordi López-Abad

Thu 6 Sep: 11.30-12.25

ICMAT (CSIC, Madrid), Spain
abad@logique.jussieu.fr

Finite families of finite sets and the Banach-Saks property

Joint work with C. Ruiz and P. Tradacete (Madrid)

We will present a recent work where it is proved that the Banach-Saks property is not preserved when taking convex hulls. Indeed, the counterexample exists in a Banach space which is constructed from a certain family of finite sets of integers with an anti-Ramsey principle relying in some classical constructions by Erdos and Hajnal.

Aleksandar Pavlović

Wed 5 Sep: 16.55-17.20

Department of Mathematics and Informatics, University of Novi Sad, Serbia
apavlovic@dmi.uns.ac.rs

Characterization of closed sets in the topology $\mathcal{O}_{\lambda_{ls}}$

Joint work with Miloš Kurilić

In the space $\langle \mathbb{B}, \mathcal{O}_{\lambda_{ls}} \rangle$, where $\mathbb{B}$ is a complete Boolean algebra and topology $\mathcal{O}_{\lambda_{ls}}$ is generated by the convergence $\lambda_{ls}(x) = (\limsup x)\uparrow$ for each closed set F there exist a set of indices X and set $\{q_x : x \in X\} \subset \mathbb{B}$ such that $F = \bigcup_{x\in X} q_x\uparrow$. For example, if $\mathbb{B}$ is a ccc algebra, then X is a set of its minimal elements and $q_x = x$. We examine when a set of the form $F = \bigcup_{x\in X} q_x\uparrow$ is a closed set. Also, in the case when $\mathbb{B} = P(\omega)$, we characterize the set X by a subbase of a T_1 second countable compact topology.

Boris Šobot

Wed 5 Sep: 17.25-17.50

Department of Mathematics and Informatics, University of Novi Sad, Serbia
sobot@dmi.uns.ac.rs

Random graphs and independent families

We explore various properties of random bipartite graphs, introduced in papers by Kojman, Shelah, Goldstern and Grossberg. These structures naturally correspond to independent families, which are themselves very important in set-theoretic constructions. We investigate their robustness, universality, possibility of factorization and maximality. Finally, we classify all countable bigraphs having a naturally defined partition property.

Jan Stary

Wed 5 Sep: 12.30-12.55

Czech Technical University, Prague, Czech Republic
hans@stare.cz

Coherent structures on Boolean algebras

Let $\mathbb{B}$ be a complete ccc algebra. Consider the set $Part(\mathbb{B})$ of all infinite partitions X of $\mathbb{B}$. Every $P(X)$ is a complete subalgebra of $\mathbb{B}$, isomorphic to $P(\omega)$. Let be U be an ultrafilter on $\mathbb{B}$. Then $U|P(X)$ is an ultrafilter on $P(X)$ for every X in $Part(\mathbb{B})$, and therefore is an ultrafilter on ω. Say that U is a *coherent P-point* if every $U|X$ is a P-point.

Coherent P-points (and other coherent families) consistently exist and have applications in topology.

Predrag Tanović

Wed 5 Sep: 15.00-15.55

Mathematical Institute of the Serbian Academy of Sciences and Arts, Belgrade, Serbia
tane@mi.sanu.ac.rs

Vaught's conjecture for theories with Skolem functions

Let T be a complete, countable, first-order theory having infinite models. T is *unstable* if there are $M \models T$, a formula $\phi(\bar{x}, \bar{y})$ (possibly using parameters from M), and $A = \{\bar{a}_i \mid i \in \omega\}$ such that $M \models \phi(\bar{a}_i, \bar{a}_j)$ if and only if $i < j$; otherwise T is *stable*. By Shelah's theorem: T is unstable iff at least one of the following two holds:

1. T has the *independence property* (IP): M, ϕ and A as above can be found such that the structure (A, ϕ^A) is isomorphic to the random graph (here ϕ^A is viewed as a binary relation on A).

2. T has the strict order property (SOP): there are $n, M \models T$ and a definable (with parameters from M) partial order on M^n having infinite chains.

(The original) Vaught's conjecture states that T has either $\leq \aleph_0$ or $2^{\aleph_0}$ countable models. The talk will be concentrated on:

Theorem. *Vaught's conjecture is true if T has built-in Skolem functions and lacks at least one of IP and SOP.*

Dimitris Vlitas

Fri 7 Sep: 12.30-12.55

Université Denis-Diderot Paris 7, France
vlitas@math.paris-univ-diderot.fr

An infinite self dual theorem

Extending a recent result of S. Solecki, we prove an Infinite Self Dual Theorem that implies simultaneously the classical Ramsey theorem and the Carlson-Simpson theorem. Thus we obtain new Ramsey spaces and Topological Ramsey spaces.

Thilo Weinert

Thu 6 Sep: 16.00-16.25

Hausdorff Research Centre for Mathematics, Bon, Germany
weinert@math.uni-bonn.de

Asymmetric partition relations between ordinal numbers

For α, β, n ordinals $\alpha \to (\beta, n)$ means that any graph on the ordinal α either contains an independent set of order-type β or a complete subgraph of order-type n. We only consider cases where n is a natural number, hence the naming.

The partition relation $\alpha \to (\beta, n)$ for α, β finite multiples of κ^2 where $\kappa = \omega$ or κ is weakly compact is characterized by a finitary problem as is the same for α, β finite multiples of $\kappa\lambda$ where κ is weakly compact and λ is an infinite cardinal less than κ. If the continuum hypothesis fails yet Martin's Axiom holds true the latter characterization also applies to the case where κ is not weakly compact but ω_1. Upper bounds are given, in the first case for $n = 3$ and in the second generally. The minimal α for which the partition relation holds true is given for $n = 3$ and $\beta = \kappa^2 2$ in the first case and for $n = 3$ and $\beta \in \{\kappa\lambda 2, \kappa\lambda 3\}$ in the second.

Many questions arise, for example one concerning the growth rate of the function assigning the minimal α satisfying the partition relation for given β and n or one asking whether and if yes how Martin's axiom can be weakened while still implying the truth of the given characterization.

This builds on work by Erdős, Rado, Specker, Larson, Mitchell but above all, Ramsey and Baumgartner.

Time	September 5th (room 62)	September 6th (room 65)	September 7th (room 65)
09.00-09.45	Registration		
09.45-10.00	Welcome words		
	Morning session	Morning session	Morning session
10.00-10.55	**S. D. Friedman** A real that kills the GCH everywhere	**J. Bagaria** Topologies on ordinals and stationary reflection	**I. Juhász** Resolvability
11.00-11.30	Coffee break		
11.30-12.25	**N. Dobrinen** Tukey types of ultrafilters	**J. López-Abad** Finite families of finite sets and the Banach-Saks property	**M. Džamonja** Universality problems in the theory of Banach spaces
12.30-12.55	**J. Stary** Coherent structures on Boolean algebras	**A. Farhat** Hyperspaces as partially ordered sets	**D. Vlitas** An infinite self dual theorem
13.00-15.00	Lunch break		
	Afternoon session	Afternoon session	Visit to Petrovaradin fortress
15.00-15.55	**P. Tanović** Vaught's conjecture for theories with Skolem functions	**M. Kurilić** Towards a forcing-related classification of relational structures	
16.00-16.25	**P. Giordano** Ultrafilter sets smaller than their complements	**T. Weinert** Asymmetric partition relations between ordinal numbers	
16.30-16.55	Coffee break		
	Evening session	Evening session	
16.55-17.20	**A. Pavlović** Characterization of closed sets in the topology $\mathcal{O}_{\lambda_{ls}}$	**B. Kuzeljević** Maximal chains of isomorphic subgraphs of the Rado graph	
17.25-17.50	**B. Šobot** Random graphs and independent families	**D. Doder** Some recent advances in probability logic	
17.55-18.20	**O. Hadžić** (Amph. 1) 50 years of Seminar for analysis and foundations of mathematics	**M. Boričić** On probabilistic inference rules	
18.25-18.50		**N. Ikodinović** Probability logics and their applications	
from 20.00		Conference dinner	