Association for Symbolic Logic

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ASL NEWSLETTER

January 2014

• In Memoriam: Ivan Soskov. Ivan Soskov passed away suddenly and unexpectedly on May 5, 2013 in Sofia at the age of 58. He was a remarkable man, not only as a mathematician, but also as a person. His contributions to computability theory are deep and will continue to bear fruit long after his death, as will his contributions to the logic group in Bulgaria and to the computability theory community around the world.

Soskov was born on September 23, 1954, in Stara Zagora in southern Bulgaria. When he was 13 he moved to Sofia to attend the National High School of Mathematics and Sciences, a school dedicated to offering an introduction to mathematics to the most talented students. He earned his undergraduate degree in mathematical logic from Sofia University in 1979. He was awarded his Ph.D. in 1983 from the same university, under the supervision of Dimiter Skordev, for his thesis entitled, *Computability in partial algebraic systems*.

Starting in 1986, a series of international conferences organized by the Department of Mathematical Logic at Sofia University took place at which prominent scientists from around the world participated. It was at one of these conferences that Soskov met Yiannis Moschovakis, from UCLA. Moschovakis had invented the notions of Prime and Search Computability, which were at the heart of Soskov's Ph.D. dissertation, and guided his research later in life. Soskov spent two years (1991-1993) as a visiting professor at UCLA, working with Moschovakis.

Soskov spent his career at Sofia University. He went from programmer in the Computing Laboratory to being the Dean of the Faculty of Mathematics and Computer Science. For many years he played a major role in the research administration of Sofia University, filling many important roles, such as that of the chair of the Council of Deans of the University. Soskov supervised 15 Master's students and he had three Ph.D. students: Stela Nikolova (1992), Vessela Baleva (2002), and Hristo Ganchev (2009).

Soskov's main area of interest was computability theory. Within this field, he worked on computable structure theory, enumeration degrees, and on connections between these. He proved some beautiful results, but he was also a theory builder who introduced many new notions that are relevant today. A few of these results are described below; a more extensive and detailed paper is being written by Ganchev and Skordev.

The notion of the jump of a structure has become a popular topic of investigation in recent years. It helps us understand some general behaviors that are present in different classes of structures, and has very nice properties that can be proved in full generality. The first definition of the jump of a structure was given by Soskov in a special session in computability theory during Logic Colloquium 2002 in Münster. The first appearance in print of this definition is in the Ph.D. thesis, *The jump operation for structure degrees* of his student Vessela Baleva. Morozov, Puzarenko, Stukachev, and Montalban then developed equivalent definitions that worked in the different settings they were considering.

There are two jump inversion theorems for this notion of jump which are quite useful. The first jump inversion theorem says that for every countable structure \mathcal{A} that codes 0' there is a structure \mathcal{B} whose jump is equivalent to \mathcal{A} . This result was independently proved by Goncharov, Harizanov, Knight, McCoy, R. Miller and Solomon, and by Soskov and Soskova, in both cases for the notion of Muchnik equivalence, but using very different proofs. It was in this paper of Soskov and Soskova that they introduced the use of Marker's extension in this context. Since then, this has been a useful tool for other applications, as for instance in Stukachev's proof that the first jump inversion theorem holds for the stronger notion of Σ -equivalence. The second jump inversion theorem says that the degree spectrum of the jump of a structure consists of the jumps of the degrees on the spectrum of the original structure. Soskov claimed this result in the Logic Colloquium 2002, and many proofs have appeared since then.

One of Soskov's most beautiful results is that intrinsically hyperarithmetic relations are the same as relatively

intrinsically hyperarithmetic relations. Given a computable structure \mathcal{A} , a relation R on \mathcal{A} is said to be relatively intrinsic hyperarithmetical if on all copies $(\mathcal{B}, R^{\mathcal{B}})$ of (\mathcal{A}, R) , we have that $R^{\mathcal{B}}$ is hyperarithmetic in \mathcal{B} . We say that R is intrinsically hyperarithmetic if the same is true when we restrict ourselves to computable structures \mathcal{B} . These notions have been widely studied for other complexity classes other than hyperarithmetic—we have intrinsically computable, intrinsically c.e., intrinsically Σ_{α} , etc. In all these cases, the "relativized" notion has a nice structural characterization, while the un-relativized one does not. Soskov's surprising result says that these notions are equivalent when looking at hyperarithmetic relations.

Another important result of Soskov is the relativized jump inversion theorem for enumeration degrees. He showed that given a set B, there is a total F such that B' is enumeration equivalent to F', where the jump here is the enumeration-jump. In that same paper he proved a much more general result for simultaneously inverting various iterations of the jumps-something that occurs when one is looking at relations of different levels of complexity within a structure. This idea led him to define the ω -enumeration degrees. By now, there are several papers by various authors written on this notion.

We mention one last particularly interesting result. Using the construction of Goncharov, Harizanov, Knight, McCoy, R. Miller and Solomon, one can see that the first jump inversion theorem holds for all successor ordinals. That is, for a successor ordinal α , if \mathcal{A} is a structure which codes $0^{(\alpha)}$, then there is a structure \mathcal{B} whose α th jump is Muchnik-equivalent to \mathcal{A} . However for a long time it was not known what happened at limit levels. Earlier in 2013 Soskov showed that the ω -jump inversion does not always hold. This was quite unexpected, and the proof required looking outside the Turing degrees and into the enumeration degree spectra of these structures.

Soskov's contributions were not limited to his mathematical results. He did a lot to maintain logic as a strong field in Bulgaria, and to grow the visibility of the Bulgarian logic group in the world, making Sofia into one of the centers in logic in Europe. With his humble and charming personality, he had a lasting impact on the people who worked with him. It is a great loss for all of us.

- The 2013 ASL Election. The ASL membership has elected Charles Steinhorn (Vassar) as Secretary-Treasurer, Joan Bagaria (Barcelona) and Rod Downey (Victoria University of Wellington) to the Executive Committee, and Alessandro Andretta (Torino) and Patricia Blanchette (Notre Dame) to the Council. Their terms of office are for three years beginning January 1, 2014. The Nominating Committee consisted of Julia Knight (Chair), Stephan Kreutzer, Penelope Maddy, Alf Onshuus, Martin Otto, Richard Shore, Katrin Tent, Andreas Weiermann, and Philip Welch.
- ASL Membership/Subscription Fulfillment and Journal Production now at Cambridge University Press. The ASL is pleased to announce that its membership/subscription fulfillment functions are now handled by Cambridge University Press. All three ASL journals—*The Bulletin*, *The Journal*, and *The Review* beginning with the 2014 volumes will be printed and distributed by Cambridge as well. Questions about these new arrangements can be directed to: Association for Symbolic Logic, c/o Membership Services Department, Cambridge University Press, 100 Brook Hill Drive, West Nyack, NY 10994, USA; Tel: 1-800-872-7423; email: USmemberservices@cambridge.org.
- Discounted Dues for New ASL Individual Members. The ASL now offers a 50% discount on dues for new individual members during each of the first two years of membership. For more information, visit http://www.aslonline.org/membership-individual.html.
- Free Individual ASL Membership Program for Individuals in Developing Economies. The ASL invites applications for an initial two-year free membership in the Association for new and lapsed members from countries classified as developing economies. The list, found at http://www.aslonline.org/worldbankeconomies.html includes Brazil, Bulgaria, China, Colombia, India, Iran, Russia, South Africa, and many other countries classified as 'upper middle income' or below on the World Bank's annual list for four of the last five years. To apply, please send an email to the ASL Committee on Membership at asl-membership@googlegroups.com. Include your name, full mailing address, and your academic affiliation. For information about the ASL and membership benefits visit http://www.aslonline.org/membership-individual.html. After the initial two year period new members under this program will pay the reduced membership dues, currently

at US\$18, as long as their country of residence is on the ASL's list of developing economies.

ASL MEETINGS

• Student Travel Awards: The 2014 ASL North American Annual Meeting, 2014 ASL European Summer Meeting, and other ASL or ASL-Sponsored Meetings. The ASL will make available modest travel awards to graduate students in logic so that they may attend the 2014 ASL North American Annual Meeting in Boulder, Colorado and the 2014 ASL European Summer Meeting in Vienna, Austria. Student members of the ASL also may apply for travel grants to other ASL or ASL-sponsored meetings. To be considered for a travel award, please (1) send a letter of application, and (2) ask your thesis supervisor to send a brief recommendation letter. The application letter should be brief (preferably one page) and should include: (1) your name; (2) your home institution; (3) your thesis supervisor's name; (4) a one-paragraph description of your studies and work in logic, and a paragraph indicating why it is important to attend the meeting; (5) your estimate of the travel expenses you will incur; (6) (for citizens or residents of the USA) citizenship or visa status; and (7) (voluntary) indication of your gender and minority status. Women and members of minority groups are strongly encouraged to apply. In addition to funds provided by the ASL, the program of travel grants is supported by a grant from the US National Science Foundation; NSF funds for meetings outside of North America may be awarded only to students at USA universities and to citizens and permanent residents of the USA. Air travel paid for using NSF funds must be in accordance with the Fly America Act. Application by email is encouraged; put "ASL travel application" in the subject line of your message.

For the 2014 ASL North American Annual Meeting, applications and recommendations should be received before the deadline of March 10, 2014, by the Program Chair: Marcia Groszek, Department of Mathematics, 6188 Kemeny Hall, Dartmouth College, Hanover, NH 03755-3551 USA; Fax: 603-646-1312; email: marcia.groszek@dartmouth.edu. Applications by email are preferred.

For the 2014 ASL European Summer Meeting, applications and recommendations should be received before the deadline of March 31, 2014, by the Organizing Committee: Kurt-Gödel-Gesellschaft, c/o Technische Universität Wien, Institut für Computersprachen E185.2, Favoritenstraße 9-11, A-1040 Vienna, Austria; email: lc2014@logic.at. Applications by email are preferred.

For ASL student member travel grants to ASL or ASL-sponsored meetings (other than the 2014 North American Annual Meeting and the 2014 European Summer Meeting), applications and recommendations should be received at least three months prior to the meeting at the ASL Business Office: ASL, Box 742, Vassar College, 124 Raymond Avenue, Poughkeepsie, New York 12604, USA; Fax: 1-845-437-7830; email: asl@vassar.edu. Decisions will be communicated at least two months prior to the meeting.

- 2013-14 ASL Spring Meeting (with APA). April 16-17, 2014, San Diego, California. This meeting will be held jointly with the Annual Meeting of the Pacific Division of the American Philosophical Association, April 16-20, 2014. The invited portion of the program includes three panels: New work on intensional and epistemic logic, chaired by S. Walsh with the speakers S. Artemov, J. Horty, and D. Tucker; Formalism today, chaired by Z. Damnjanovic with the speakers M. Ganea, L. Kirby, E. Nelson, and A. Weir; and, Metalogic and early analytic philosophy, chaired by E. Reck with the speakers P. Blanchette, G. Schiemer, and R. Zach. The members of the Program Committee are Z. Damnjanovic, E. Reck (Chair), and S. Walsh. The complete program for this meeting is included in this Newsletter mailing. Information about registration and hotel reservations can be found at http://www.apaonline.org/group/pacific.
- 2014 ASL North American Annual Meeting. May 19–22, 2014, Boulder, Colorado. The invited speakers are: L. Barto, B. Csima, V. de Paiva, J. Hirst, M. Hrusak, A. Kolesnikov, A. Marks, M.C. Laskowski, and S. Walsh. Alex Wilkie will give an ASL retiring presidential address. Special sessions (with organizers in parentheses) include: Higher-order computation: semantics and algorithmics (L. Ong), Model theory (P. Hieronymi and J. Marikova), Philosophical aspects of games and social algorithms (E. Pacuit and R. Parikh), Recursion theory (O. Levin and R. Solomon), Set theory in honor of Rich Laver (J. Larson and W. Mitchell), and Universal Algebra and Constraint Satisfaction (A. Szendrei and R. Willard). The members of the Program Committee are:

M. Groszek (Chair), A. Kanamori, K. Kearnes, J. Marikova, S. Thomas, and H. Towsner. The Local Organizing Committee includes: N. Dobrinen, G. Forbes, N. Galatos, K. Kearnes (Chair), D. Monk, and A. Szendrei. Local information and a registration form are enclosed in this Newsletter mailing. Electronic registration is available at http://www.aslonline.org/meeting_registrationsecure.html. For further information, visit http://math.colorado.edu/asl2014/.

Abstracts of contributed talks submitted by ASL members will be published in *The Bulletin of Symbolic Logic* if they satisfy the Rules for Abstracts (see below). Abstracts must be received by the deadline of February 21, 2014, at the ASL Business Office: ASL, Box 742, Vassar College, 124 Raymond Avenue, Poughkeepsie, New York 12604, USA; Fax: 1-845-437-7830; email: asl@vassar.edu.

2014 ASL European Summer Meeting (Logic Colloquium '14). July 14–19, 2014, Vienna, Austria. Logic Colloquium '14 will take place during the Vienna Summer of Logic (see below). The twenty-fifth annual Gödel Lecture will be delivered by J. Knight. The invited speakers are: A. Bauer, P. Blanchette, K. Eisenträger, A. Cordón Franco, V. Fischer, N. Greenberg, L. Kołodziejczyk, B. Miller, M. Reynolds, M. Soskova, and A. Visser. Tutorials will be offered by K. Apt and A. Miquel. Special Sessions (with organizers in parentheses) that are planned include: Logic of games/rational choice (R. Ramanujam), Model theory (Z. Chatzidakis), Perspectives on induction (M. Baaz, S. Hetzl; joint with LICS/CSL), Philosophy of mathematics (Ø. Linnebo), Recursion theory (E. Fokina and D. Turetsky), and Set theory (M. Goldstern and J. Kellner). The Program Committee members are: Z. Adamowicz, J. Avigad (Chair), M. Bezem, S. Friedman, J. Koenigsman, K. Lodaya, P. Oliva, T. Slaman, and R. Zach. The Local Organizing Committee includes: M. Baaz (Chair), A. Ciabattoni, S. Eberhard, M. Goldstern, and S. Hetzl (Co-chair). For more information, visit http://www.logic.at/lc2014/.

Abstracts of contributed talks submitted by ASL members will be published in *The Bulletin of Symbolic Logic* if they satisfy the Rules for Abstracts (see below). Abstracts should be submitted by the deadline of March 28, 2014 at https://www.easychair.org/conferences/?conf=lc2014.

• Rules for Abstracts. The rules for abstracts of contributed talks at ASL meetings (including those submitted "by title") may be found at http://www.aslonline.org/rules_abstracts.html. Please note that abstracts *must* follow the rules as set forth there; those which do not conform to the requirements will be returned immediately to the authors submitting them. Revised abstracts that follow the rules will be considered if they are received by the announced deadline.

ASL SPONSORED MEETINGS

- Second Models and Groups Istanbul Workshop. March 27-29, 2014, Istanbul, Turkey. The invited speakers include: A. Borovik, A. Deloro, K. Ersoy, M. Korkmaz, C. Perin, and B. Poizat. Tutorials will be offered by R. Sklinos and F. Wagner. The members of the Organizing Committee are T. Altinel and A. Berkman. For further information, visit http://math.univ-lyon1.fr/%7Ealtinel/modelsgroups.html.
- Computability and Computable Structures. June 2-7, 2014, Kazan, Russia. This summer school will include plenary lectures for students and young researchers. The invited speakers include: K. Ambos-Spies, S.S. Goncharov, B. Khoussainov, J. Knight, S. Lempp, and Y. Yang. The members of the Program Committee are: K. Ambos-Spies, M.M. Arslanov, S.B. Cooper, S.S. Goncharov, C. Jockusch, N.G. Khisamiev, J. Knight, S. Lempp, R. Shore, and R. Soare. The Chair of the Organizing Committee is I. Kalimullin. For further information, visit http://kpfu.ru/main_page?p_sub=26087.
- Computability in Europe 2014 (CiE 2014): Language, Life, Limits. June 23–27, 2014, Budapest, Hungary. This is the tenth in a series organized by Computability in Europe (CiE). The special focus of the conference is on relations between computational linguistics, natural and biological computing, and more traditional fields of computability theory. Tutorials will be offered by P. Grünwald and W. Thomas. The invited speakers include: L. Beklemishev, A. Carbone, M. Fernandez, P. Prusinkiewicz, E. Tardos, and A. Visser. Special sessions on the following topics also are planned (with organizers in parentheses): Bio-inspired Computation (M.

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ASL SPONSORED MEETINGS (continued)

Gheorghe and F. Manea), Complexity in Automata Theory (M. Lohrey and G. Pighizzini), Computability Theory (B. Csima and K. Lange), Computational Linguistics (M.D. Jimnez-López and G. Prószky), History and Philosophy of Computing (L. de Mol and G. Primiero), and Online Algorithms (J. Boyar and C. Imreh). The Program Committee Co-chairs are E. Csuhaj-Varjú and K. Meer, and the Chair of the Steering Committee is A. Beckmann. For more information, visit http://cie2014.inf.elte.hu.

- Twenty-Third EACSL Annual Conference (CSL) and Twenty-ninth Annual ACM/IEEE Symposium on Logic in Computer Science (LICS 2014). July 14–18, 2014, Vienna, Austria. The organizers of these two series of meetings will join the 2014 editions into a single event within the Sixth Federated Logic Conference (FLoC 2014) that will take place during the Vienna Summer of Logic 2014 (see below). CSL is the annual meeting of the European Association for Computer Science Logic (EACSL) intended for computer scientists whose research activities involve logic, as well as for logicians working on issues significant for computer science. The LICS Symposium is an annual international forum on theoretical and practical topics in computer science that relate to logic. The Program Committee Chairs are T.A. Henzinger and D. Miller, the Workshop Chairs are P. Bouyer-Decitre and G. Moser, and the members of the Local Organizing Committee are K. Chatterjee and J. Otop. For further information, visit http://lii.rwth-aachen.de/lics/csl-lics14/index.html.
- XVI Latin American Symposium on Mathematical Logic (SLALM 2014). July 28-August 1, 2014, Buenos Aires, Argentina. The invited plenary speakers are: V. Becher, L. Beklemishev, O. Chateubriand, P. Jipsen, S. Todorcevic, and B. Zilber. The confirmed tutorial courses (with topics in parentheses) are to be offered by: M. Magidor (Set Theory), A. Montalbán (Computability Theory), and K. Peterzil (Model Theory). Special sessions on the following topics also are planned (with organizers in parentheses): Computability Theory (C. Areces and T. Slaman), Model Theory (A. Berenstein and C. Steinhorn), Non-Classical Logics (M. Busaniche and F. Montagna), and Set Theory (J. Bagaria and C. Uzctegui). The members of the Program Committee are: J. Bagaria, X. Caicedo, W. Carnielli, R. Cignoli (Chair), R. de Queiroz, C. Di Prisco, J. Iovino, F. Montagna, T. Slaman, and C. Steinhorn. The Local Organizing Committee includes: M. Busaniche, S. Figueira, R. Grimson, J. Legris, R. Rodríguez, P. Sánchez Terraf, and H. San Martín. For further information, visit http://www-2. dc.uba.ar/congresos/slalm2014/.
- Twenty-first Workshop on Logic, Language, Information and Computation (WoLLIC'2014). September 1-4, 2014, Valparaiso, Chile. This is the twenty-first in a series of workshops intended to foster interdisciplinary research in pure and applied logic. The Chair of the Program Committee is U. Kohlenbach. The Co-chairs of the Organizing Committee are P. Barceló and R. de Queiroz. For further information, visit http://wollic.org/wollic2014/.

CALENDAR OF OTHER MEETINGS (Also see http://www.aslonline.org.)

- MSRI Program on Model Theory, Arithmetic Geometry and Number Theory. January 20-May 23, 2014, Berkeley, California. This Mathematical Sciences Research Institute program aims to further the flourishing interaction between model theory and other parts of mathematics, especially number theory and arithmetic geometry. At present the model theoretical tools in use arise primarily from geometric stability theory and o-minimality. Current areas of lively interaction include motivic integration, valued fields, diophantine geometry, and algebraic dynamics. The organizers are: E. Hrushovski, F. Loeser, D. Marker, T. Scanlon, S. Starchenko, and C. Wood (Lead). For further information, visit http://www.msri.org/programs/272.
- Conference in Celebration of Philip Welch's Sixtieth Birthday. March 22-23, 2014, Bristol, UK. The invited speakers include: D. Aspero, V. Halbach, P. Koellner, P. Koepke, H. Leitgeb, M. Magidor, J. Steel, and H. Woodin. This meeting is supported by the Heilbronn Institute at Bristol, and the British Logic Colloquium. For further information, visit https://www.maths.bris.ac.uk/events/meetings/meeting/index.php?meeting_id=113.

Calendar of other meetings continued on reverse side

- Eleventh Annual Conference on Theory and Applications of Models of Computation (TAMC 2014). *April 11-13, 2014, Chennai, India.* The Conference Chair is T.V. Gopal and the Co-Chair is M. Agrawal. For further information, visit http://www.annauniv.edu/tamc2014/.
- Vienna Summer of Logic 2014. July 9–24, 2014, Vienna, Austria. This event consists of several co-located conferences organized in three streams: Logic in Computer Science / Federated Logic Conference; Mathematical Logic; and Logic in Artificial Intelligence. The opening speaker is D. Scott, and the keynote speakers are: F. Baader, E.M. Clarke, C. Papadimitriou, and A. Wilkie. Eight conferences are included in the Logic in Computer Science / Federated Logic Conference stream: the Twenty-sixth International Conference on Computer-Aided Verification (CAV), the Twenty-seventh IEEE Computer Security Foundations Symposium (CSF), the Thirtieth International Conference on Logic Programming (ICLP), the Seventh International Joint Conference on Automated Deduction (IJCAR), the Fifth Conference on Interactive Theorem Proving, the ASL-sponsored Joint meeting of the Twenty-third EACSL Annual Conference on Computer Science Logic (CSL) and the Twentyninth ACM/IEEE Symposium on Logic in Computer Science (LICS), the Twenty-fifth International Conference on Rewriting Techniques and Applications (RTA) joint with the Twelfth International Conference on Typed Lambda Calculi and Applications (TLCA), and the Seventeenth International Conference on Theory and Applications of Satisfiability Testing (SAT). The Mathematical Logic stream includes four conferences: the European Summer Meeting of the ASL (Logic Colloquium 2014), the Infinity Workshop, Logic, Algebra and Truth Degrees 2014, and the Kurt Gödel Fellowship Conference. The three conferences in the Logic in Artificial Intelligence stream are: the Fourteenth International Conference on Principles of Knowledge Representation and Reasoning (KR), the Twenty-seventh International Workshop on Description Logics (DL), and the Fifteenth International Workshop on Non-Monotonic Reasoning (NMR). The Organizing Committee for the Vienna Summer of Logic includes: M. Baaz (Chair), A. Ciabattoni, T. Eiter, G. Gottlob, T. Henzinger, A. Leitsch, V. Sabljakovic-Fritz, S. Szeider, H. Veith, and S. Woltran. For further information, visit http://vsl2014.at/.
- Twenty-sixth European Summer School in Logic, Language and Information (ESSLLI-2014). August 11-22, 2014, Tübingen, Germany. The European Summer School in Logic, Language and Information brings together logicians, linguists, computer scientists, and philosophers to study language, logic, and information, and their interconnections. Introductory and advanced courses, together with workshops, cover a wide variety of topics within the three areas of interest: Language and Computation, Language and Logic, and Logic and Computation. The Chair of the Program Committee is F. Veltman and the Local Co-chair is C. Ebert. The Chair of the Organizing Committee is G. Jäger. ESSLLI-2014 is organized under the auspices of the European Association for Logic, Language and Information (FoLLI). For more information about ESSLLI-2014, visit http://institucional.us.es/folliweb/.

OTHER ANNOUNCEMENTS (Also see http://www.aslonline.org.)

• Call for Nominations: 2014 Ackermann Award. The European Association for Computer Science Logic (EASCSL) invites submissions for its Outstanding Dissertation Award for Logic in Computer Science (Ackermann Award). To be eligible for the 2014 Ackermann Award, the candidate must have completed a Ph.D. dissertation in topics specified by the EACSL and LICS conferences that was formally accepted as a Ph.D. thesis at a university or equivalent institution between January 1, 2012 and December 31, 2013. The deadline for submission is February 28, 2014; details are available at http://www.eacsl.org/submissionsAck.html. The Award is sponsored by the Kurt Gödel Society.

The next Newsletter will be sent in April 2014. Items to be included should reach the Secretary-Treasurer before March 31, 2014.

Submitted by Charles Steinhorn, Secretary-Treasurer.