

Curriculum Vitae

Personal Details

Noa Lavi

Education

B.A. in Computer science *cum laude* (2000-2003), The Open University, Israel. I started this degree during middle school.

Courses of M.Sc degree in Mathematics (2004-2005), The Weizmann institute of science.

Complementary courses for M.Sc program in Mathematics (2005-2006), Ben-Gurion University of the Negev, Israel.

M.Sc. in Mathematics (2009-2010), Ben-Gurion University of the Negev, Israel. Thesis: "Ganzstellensatz for open sets over real closed valued fields"

Ph.d in Mathematics (2012-2018), The Hebrew university in Jerusalem, Israel.

Publications

- (1) N. Lavi, Ganzstellensatz for open sets over real closed valued fields, Msc thesis, Ben Gurion university of the Negev, 2010.
- (2) N. Lavi, A Ganzstellensatz for semi-algebraic sets and a boundedness criterion for rational functions, *Communications in Algebra* 44(2016), 26-39.
- (3) N. Lavi, Positivstellensätze for semi-algebraic sets in real closed valued fields, *Proceedings of the American Mathematical Society* 143(2015), 4479-4484.
- (4) I. Kaplan, N. Lavi, S. Shelah The generic pair conjecture for dependent finite diagrams, *Israel Journal of Mathematics* 212 (2016), 252-287.
- (5) N. Lavi, Real Closed Fields and other dependent structures, Phd thesis, The Hebrew university of Jerusalem, 2018.

Positions and grants

- Oct 2018 - Oct 2019 Politecnico di Torino, Italy. Postdoc (assegnista di ricerca).
- Sept - Oct 2011 Münster University, Germany. Visiting student grant.
- Oct - Dec 2010 Konstanz University, Germany. Research assistant (Graduate).

Teaching Experience

- October - December 2019 Teaching in Italian a phd course in logic at the university of Florence (joint with Prof. Antongiulio Fornasiero).
- 2013 - 2018 March Lecturer in the open university, Israel. Teaching courses: Mathematical logic, Automates and formal languages, Data structures and introduction to algorithms, Algorithms, Introduction to the theory of computability and complexity, Introduction to computer science. More than 900 hours of frontal teaching. Moreover, the position included student support as grading e.c.
- 2012 - 2013 fall The Hebrew university in Jerusalem, Israel. Teaching assistant in undergraduate course: Mathematical logic
- 2007 - 2008 The Open University, Israel. Teaching assistant in undergraduate course: Software engineering.
- 2006 - 2007 Ben-Gurion University of the Negev, Israel. Teaching assistant in Undergraduate courses: Linear algebra for engineers, Functional analysis

Languages

Hebrew (mother tongue), English (excellent), Spanish (excellent), German (good), French (good), Italian (very good), Portuguese (moderate), Arabic (basic), Russian (basic).

Research interests

I am interested in model theory, both in its pure aspect and its connection with algebra and geometry. By now, in the applied part I was mainly working in model theory of valued fields, and published two papers about boundedness and positivity criterions in real closed fields. Working on real algebraic geometry in valued fields, I have started to look at what is done in Berkovich spaces, in particular in the paper by Hrushovski-Loeser “Non-archimedean tame topology and stably dominated types”, and see what can work in the real case.

The theories of algebraically and real closed valued fields belong to the family of dependent theories. The work done by Hrushovski-Loeser relies a lot on the fact the theory of $ACVF$ is decomposable into “somehow stable” part and its ordered part. It is conjectured that this is the case in any dependent theory. Considering dependent fields, this conjecture could be interpreted as henselianity, as henselianity could give something in the same spirit by the AKE principal. Together with Itay Kaplan I am working on a conjecture made by Saharon Shelah that “strongly” dependent fields are either algebraically closed, real closed, or admit a definable henselian valuation.

I am very interested also in integration in valued fields and applications in representation theory.

I read and wrote some survey on the paper by Hrushovski-Martin “Zeta Functions from Definable Equivalence Classes”, and also read some of Hrushovski-Kazhdan 1 and 3.

Talks

Invited Talks

Model theory of the p-adics conference, Universidad Nacional and Universidad de los Andes, Bogota, Colombia, March 2009. Talk: “Being integral-definite on the positivity set of n polynomials”.

ESF-EMS-ERCOM Conference: Model Theory, Bedlewo, Poland, August 2009. Poster: “Ganzstellensatz for semi-algebraic sets in real closed valued fields”.

Positivity, Valuations, and Quadratic Forms, Universität Konstanz, Konstanz, Germany, October 2009. Talk: “Ganzstellensatz for open sets in real closed fields”.

Definability in Number Theory, Ghent, Belgium, August 2010. Talk: “Stellensatz on real closed valued fields”.

First MALOA Training Workshop, Fischbachau, Germany, September 2010. Talk: “Stellensätze on real closed valued fields”.

British postgraduate model theory conference, Leeds, England, January 2011. Talk: “Some positivstellensätze in real closed valued fields”.

Real Algebraic Geometry Conference, Rennes, France, June 2011. Talk: “Some Positivstellensätze in real closed valued fields”.

Joint meeting of Italian Mathematical union and Polish Mathematical society, model theory session, Wrocław, Poland, September 2018. Talk: “Dependent finite diagrams and the generic pair conjecture”.

Workshop on Tame Expansions of O-minimal structures, Konstanz, Germany, October 2018. Poster session.

Seminars at universities

Logic and Set Theory seminar, Ben Gurion university of the Negev. January 2008. Talk: “Integral-definitivity proof by the model theoretic framework”

Graduate students seminar, Ben Gurion university of the Negev. February 2008. Talk: “An introduction to the Model Theory and the Nullstellensatz”.

Mathematical Logic Seminar, The Hebrew University of Jerusalem, Israel, January 2009. Talk: “Being integral-definite on the positivity set of n polynomials”.

Logic and Set Theoretic Topology seminar, Ben Gurion university of the Negev. November 2009. Talk: “Stellensatz on real closed valued fields”.

Real algebra and geometry seminar, Univerisity of Konstanz, Germany, November 2010. Talk: “Stellensätze on real closed valued fields”.

Invited speaker at logic seminar, University of Wroclaw, Poland, March 2017. Talk: “Dependent finite diagrams and the generic pair conjecture”.

Algebra seminar, university of Florence, May 2018. Talk: “positivity and boundedness in ordered valued fields”.

Logic seminar, university of Turin, November-December 2018. Series of talks in the topic: “Dependent diagrams in finite diagrams”.

Logic seminar, university of Wroclaw, December 2019. Talk: “Type decomposition in NIP finite diagrams and its applications”.

Online model theory seminar in Italy, 2020. Organizer.

2/12/2020 Piove di sacco