The Weisfeiler–Leman dimension of graphs, old and new results

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Abstract. In the present talk, we first give several equivalent definitions of the Weisfeiler–Leman dimension of a graph. Then, we briefly survey some known results on this invariant and its connection to the Graph Isomorphism Problem. In the main part of the talk, we discuss recently obtained results and mention some open problems.

About the speaker. Ilia Ponomarenko is the Head of the Laboratory of Mathematical Logic and Discrete Mathematics at the St. Petersburg Department of the V.A. Steklov Institute of Mathematics, where he has been working since November 1990.

His principal fields of interest are algebraic combinatorics (coherent configurations, permutation groups) and the theory of computational complexity (algebra, combinatorics). He has authored or coauthored about 110 papers, some of which have appeared in international journals such as Computational Complexity, Journal of the ACM, Journal of Algebra, Bulletin of the London Mathematical Society, Combinatorica, and Journal of Combinatorial Theory, Series A.

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