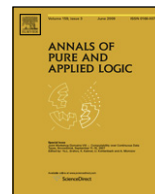




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## Preface

This special issue is dedicated to the proceedings of the *IPM 2007 Logic Conference* that took place June 10–17, 2007 at the Institute for Studies in Theoretical Physics and Mathematics (IPM) in Tehran, Iran. The conference provided a singular venue for scholarly exchange and collaboration between international researchers and Iranian scholars and students in several research frontiers of mathematical logic.

We take this opportunity to briefly introduce the papers in this issue.

- *On the computational complexity of cut-reduction* (K. Aehlig and A. Beckmann) exploits the proof-theoretic concept of notation system for derivations to provide a new unified method to establish all the known results on definable (multi-) functions in theories of Bounded Arithmetic.
- *The double negation of the intermediate value theorem* (M. Ardeshir and R. Ramezani) examines the status of the intermediate value theorem of classical analysis, when viewed within various axiomatic intuitionistic frameworks.
- *An arithmetic view to first order logic* (M. Bagheri, B. Poizat, and M. Pourmahdian) develops the model theory of a generalization of first order logic with truth values in a topological algebra.
- *Kripke semantics for provability logic GLP* (L. Beklemishev) studies the semantics of the polymodal provability logic GLP and develops a complete Kripke-style semantics that, among other things, can be used to show decidability and the Craig Interpolation Theorem for GLP through finitary means.
- *Extending and interpreting Post's programme* (B. Cooper) revisits foundational motifs behind Post's programme, and discusses two promising research projects that are inspired by the programme. The paper concludes with an intriguing discussion concerning the relationship between computability theory and physics.
- *Effectiveness in continuous logic* (F. Didevar, K. Ghasemloo, and M. Pourmahdian) studies the model theory of rational Pavelka logic (an extension of Łukasiewicz logic) and continuous logic from a novel computability-theoretic viewpoint.
- *Dependence of variables construed as an atomic formula* (W. Hodges and J. Väänänen) introduces and develops a logical system (dependence logic) in which the dependence of quantifiers (as in Henkin quantifiers, or Hintikka's independence friendly logic) is recast as dependence between terms.
- *A characterization of the language invariant families satisfying spectrum exchangeability in polyadic inductive logic* (J. Landes, J.B. Paris, and A. Vencovská) establishes a converse to an earlier published theorem of the authors, thereby yielding a complete characterization of language invariant probability functions in polyadic inductive logic that satisfy the so-called spectrum exchangeability condition.
- *Quelques effets pervers de la positivité* (B. Poizat) concerns positive model theory. The paper is focused on various phenomena encountered in the study of positive model theory that contradict certain intuitions gained from working with usual first order model theory.

Further information about the conference can be obtained at the following:

<http://math.ipm.ac.ir/conferences/2007/logic2007/>

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Ali Enayat\*

*Department of Mathematics and Statistics,  
American University, 4400 Mass. Ave. NW,  
Washington, DC 20016-8050, USA  
E-mail address: [enayat@american.edu](mailto:enayat@american.edu).*

Iraj Kalantari

*Department of Mathematics,  
Western Illinois University,  
Macomb, IL 61455, USA  
E-mail address: [i-kalantari@wiu.edu](mailto:i-kalantari@wiu.edu).*

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\* Corresponding editor.