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EDITORIAL PREFACE

Preface

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The 16th Annual Conference on Theory and Applications of Models of Computation (TAMC 2020) was held from October 18 to October 20, 2020, in Changsha, China. The main themes of TAMC 2020 were computability, complexity, algorithms, information theory and extensions to machine learning theory, and foundations of intelligent machinery. Some of the best papers of TAMC 2020 were invited for extended versions to be published in this special issue of Mathematical Structures in Computer Science. Through a rigorous reviewing process, seven submissions were selected for inclusion in this Special Issue, which represent the most recent progress in the areas mentioned above.

In the first paper "Consistent disjunctive sequent calculi and Scott domains", the authors establish a purely, syntactic representation of Scott domains. They show that a category of certain proof systems with consequence relations is equivalent to that of Scott domains with Scott-continuous functions.

In the second paper "An improved approximation algorithm for the k-means problem with penalties using primal-dual technique", the authors give a $(6.357 + \epsilon)$-approximation algorithm for the k-means problem with penalties. The approximation ratio improves the previous best result $19.849 + \epsilon$.

In the third paper "Two-stage submodular maximization problem beyond non-negative and monotone", the authors study a two-stage submodular problem subject to cardinality constraint and matroid constraint. They give a deterministic $(\frac{1}{2}(1 - e^{-2}), 1)$-approximation algorithm and a randomized $(\frac{1}{2}(1 - e^{-2}) - \epsilon, 1)$-approximation algorithm for the problem.

In the fourth paper "Rogers semilattices of punctual numberings", the authors consider the theory of numberings in the punctual setting. They prove that any infinite Rogers pr-semilattice is dense and does not have minimal elements. Furthermore, they give an example of infinite Rogers pr-semilattice, which is a lattice.

In the fifth paper "Synchronizing words and monoid factorization, yielding a new parameterized complexity class?", the authors consider a decision problem that decides if a given DFA possesses a synchronizing word of length at most k. They show that the problem belongs to A[2], W[P] and WNL, implying a new parameterized complexity class as a proper home for the problem.

In the sixth paper "On existence of equilibrium under social coalition structures", the authors study some equilibrium notions in resource selection games (RSGs), and present a complete set of existence and non-existence results for general RSGs and their important special cases.

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In the seventh paper "On Petrie cycle and Petrie tour partitions of 3- and 4-regular plane graphs", the authors present characterizations of 3- and 4-regular plane graphs with Petrie cycle and tour partitionings.

We would like to thank all authors for submitting their work to this Special Issue and thank the reviewers for their excellent work. We thank the members of the Editorial Board of Mathematical Structures in Computer Science for their encouragement, advice, and support throughout the preparation of this Special Issue.