1. Record Nr. UNINA9910735787803321 Autore Schnieber Martha Titolo Polynomial Formal Verification of Approximate Functions [[electronic resource] /] / by Martha Schnieber Wiesbaden:,: Springer Fachmedien Wiesbaden:,: Imprint: Springer Pubbl/distr/stampa Vieweg, , 2023 **ISBN** 3-658-41888-5 Edizione [1st ed. 2023.] Descrizione fisica 1 online resource (87 pages) Collana BestMasters, , 2625-3615 Disciplina 512.942 Soggetti Electronic circuits Electronic circuit design Algebra Mathematics - Data processing **Electronic Circuits and Systems Electronics Design and Verification** Computational Mathematics and Numerical Analysis Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Nota di contenuto Introduction -- Preliminaries -- RelatedWork -- PolynomialVerification -- Experiments -- Conclusion. Sommario/riassunto During the development of digital circuits, their functional correctness has to be ensured, for which formal verification methods have been

has to be ensured, for which formal verification methods have been established. However, the verification process using formal methods can have an exponential time or space complexity, causing the verification to fail. While exponential in general, recently it has been proven that the verification complexity of several circuits is polynomially bounded. Martha Schnieber proves the polynomial verifiability of several approximate circuits, which are beneficial in error-tolerant applications, where the circuit approximates the exact function in some cases, while having a lower delay or being more area-efficient. Here, upper bounds for the BDD size and the time and space complexity are provided for the verification of general approximate functions and several state-of-the-art approximate adders. About the

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