**DESIGN OF EFFICIENT BCD ADDERS IN QUANTUM DOT CELLULAR AUTOMATA**

**Abstract:**

Among the emerging technologies recently proposed as alternatives to the classic CMOS, Quantum-dot cellular automata (QCA) is one of the most promising solutions to design ultra lowpower and very high speed digital circuits. Efficient QCA-based implementations have been demonstrated for several binary and decimal arithmetic circuits, but significant improvements are still possible if the logic gates inherently available within the QCA technology are smartly exploited. This brief proposes a new approach to design QCA-based BCD adders. Exploiting innovative logic formulations and purpose designed QCA modules, computational speed significantly higher than existing counterparts are achieved without sacrificing either the occupied area or the cells count.

**TOOLS:**

1. **XilinxISE 14.7**

**LANGUAGE:**

1. **VerilogHDL**