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(54) **SYSTEMS, METHODS AND DEVICES FOR PROVIDING VARIABLE-LATENCY WRITE OPERATIONS IN MEMORY DEVICES**

(75) Inventors: **Eric Rotenberg**, Raleigh, NC (US);
Ravi K. Venkatesan, Raleigh, NC (US);
Ahmed S. Al-Zawawi, Raleigh, NC (US)

(73) Assignee: **North Carolina State University**,
Raleigh, NC (US)

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See application file for complete search history.

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Primary Examiner—Son T. Dinh
(74) *Attorney, Agent, or Firm*—Myers Bigel Sibley & Sajovec, PA

(57) **ABSTRACT**

A memory system includes storage cells, a respective one of which is configured to store a fixed charge therein when a write voltage applied thereto is above a predetermined threshold voltage and to discharge the fixed charge therefrom when the write voltage applied thereto is below the threshold voltage. The storage cells may be charged and/or discharged at a latency that is a function of a voltage differential between the write voltage and the threshold voltage. A variable-latency write circuit for the storage cells is configured to dynamically vary the voltage differential between the write voltage and the threshold voltage to provide a variable-latency write operation that stores the fixed charge therein or discharges the fixed charge therefrom. Related methods are also discussed.

31 Claims, 15 Drawing Sheets

