US 20220399883A1

(19) **United States**

(12) **Patent Application Publication** (10) **Pub. No.: US 2022/0399883 A1**

Fay (43) **Pub. Date: Dec. 15, 2022**

(54) **RING OSCILLATOR BASED TRUE RANDOM NUMBER GENERATOR AND A METHOD FOR GENERATING A RANDOM NUMBER**

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(21) Appl. No.: **17/303,839**

(22) Filed: **Jun. 9, 2021**

Publication Classification

(51) **Int. Cl.**

H03K 3/84	(2006.01)
H03K 3/03	(2006.01)
H03K 21/08	(2006.01)

(52) **U.S. Cl.**

CPC ***H03K 3/84*** (2013.01); ***H03K 3/0315*** (2013.01); ***H03K 21/08*** (2013.01)

(57) **ABSTRACT**

A true random number generator circuit includes a ring oscillator and a plurality of sampling circuits. The ring oscillator includes a plurality of series-connected stages coupled together in a ring. An output of a last stage of the ring oscillator is coupled to an input of a first stage of the ring oscillator. A sampling circuit of the plurality of sampling circuits has an input coupled to a node located between two adjacent stages of the plurality of series-connected stages. Every node of the ring oscillator is coupled to a corresponding sampling circuit of the plurality of sampling circuits. In another embodiment, a method for generating a random number is provided.