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Rosenstein et al.

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(54) **SYSTEMS AND METHODS FOR SINGLE-MOLECULE DETECTION USING NANOPORES**

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(58) **Field of Classification Search**
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See application file for complete search history.

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 186 days.

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(57) **ABSTRACT**
A system and method for detecting a single-molecule using an integrated circuit which includes at least one membrane having a nanopore located between first and second reservoirs and a low-noise preamplifier having an electrode formed on the surface thereof is provided. The method includes passing a target molecule through the nanopore, and measuring a current through the nanopore to detect the presence of a biomolecular entity, if any.

(52) **U.S. Cl.**
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20 Claims, 21 Drawing Sheets

