



US007253466B2

(12) **United States Patent**
Misra et al.

(10) **Patent No.:** **US 7,253,466 B2**
(45) **Date of Patent:** **Aug. 7, 2007**

- (54) **CROSSBAR ARRAY MICROELECTRONIC ELECTROCHEMICAL CELLS**
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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 43 days.

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(21) Appl. No.: **11/166,938**

(22) Filed: **Jun. 24, 2005**

(65) **Prior Publication Data**

US 2005/0242389 A1 Nov. 3, 2005

Related U.S. Application Data

(62) Division of application No. 10/407,680, filed on Apr. 4, 2003, now Pat. No. 6,958,270.

(60) Provisional application No. 60/433,923, filed on Dec. 17, 2002.

(51) **Int. Cl.**
H01L 29/76 (2006.01)

(52) **U.S. Cl.** **257/314; 257/295; 257/296; 257/315; 257/E27.004; 438/257; 438/593; 365/65; 365/117**

(58) **Field of Classification Search** **257/314-316; 438/257, 593; 365/65, 117**
See application file for complete search history.

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(57) **ABSTRACT**

The present invention provides microelectronic electrochemical structures and related fabrication methods. A composite microelectronic structure is provided that includes first and second conductors dielectrically isolated from one another at a crossing thereof, the crossing surrounded by a dielectric material. A portion of the dielectric material around the crossing of the first and second conductors is removed to form a well that exposes respective outer surfaces of the first and second conductors and a molecule is deposited in the well such that the deposited molecule contacts the exposed outer surfaces of the first and second conductors.

32 Claims, 5 Drawing Sheets

