



US 20040258571A1

(19) **United States**

(12) **Patent Application Publication** (10) **Pub. No.: US 2004/0258571 A1**

**Lee et al.** (43) **Pub. Date: Dec. 23, 2004**

(54) **FLUIDIC ARRAYS AND METHOD OF USING**

(60) Provisional application No. 60/313,644, filed on Aug. 20, 2001.

(75) Inventors: **Jessamine Lee**, Cambridge, MA (US);  
**Rustem F. Ismagilov**, Chicago, IL (US);  
**Xingyu Jiang**, Arlington, MA (US);  
**Paul J. A. Kenis**, Champaign, IL (US);  
**Rosaria Ferrigno**, Bron (FR);  
**George M. Whitesides**, Newton, MA (US)

**Publication Classification**

(51) **Int. Cl.<sup>7</sup>** ..... **G01N 11/00**

(52) **U.S. Cl.** ..... **422/100**

Correspondence Address:  
**Timothy J. Oyer, Ph.D.**  
**Wolf, Greenfield & Sacks, P.C.**  
**600 Atlantic Avenue**  
**Boston, MA 02210 (US)**

(57) **ABSTRACT**

The present invention relates to fluidic systems and, in particular, fluidic arrays and methods for using them to promote interaction of materials. In one embodiment, the present invention is directed to a microfluidic system. The microfluidic system includes a first fluid path and a second fluid path segregated from the first fluid path by a first convection controller at a first contact region, wherein at least one of the first fluid path and the second fluid path has a cross-sectional dimension of less than about 1 millimeter. In another aspect, the present invention is directed to a method of promoting interaction. In another aspect, the invention relates to a device and method for performing titrations.

(73) Assignee: **President and Fellows of Harvard College**, Cambridge, MA

(21) Appl. No.: **10/783,983**

(22) Filed: **Feb. 20, 2004**

**Related U.S. Application Data**

(63) Continuation-in-part of application No. PCT/US02/26459, filed on Aug. 20, 2002.

