A depletion detection architecture based on magnetoresistive sensors for bioapplication

Zheng F., Wang H., Zhang L.

College of Microelectronics and Solid State Electronics, University of Electronics Science and Technology of China, Chengdu 610054, China

Abstract: This paper presents a novel architecture for a bio-detection system to reuse magnetoresistive sensors and improve its repeatability. The architecture is composed of two fixed magnetoresistive sensors, a movable biochip, a microfluidic device and two current straps. On the action of a magnetic field gradient generated by current strap, functional magnetic particles pass along the channel. Some particles are bound by a special reaction to the biochip surface, and magnetoresistive sensors on the two ends measure the number of particles of original state and subsequencial state. The signal difference of two magnetoresistive sensors reflect the number of the depletion magnetic particles captured by the biochip. © 2009 World Scientific Publishing Company.

Author Keywords: Biochip; Depletion detection; Magnetoresistive sensor; Microfluidic device

Year: 2009
Source title: Modern Physics Letters B
Volume: 23
Issue: 11
Page : 1425-1430
Link: Scorpus Link
Document Type: Article
Source: Scopus

Authors with affiliations:

1. Zheng, F., College of Microelectronics and Solid State Electronics, University of Electronics Science and Technology of China, Chengdu 610054, China
2. Wang, H., College of Microelectronics and Solid State Electronics, University of Electronics Science and Technology of China, Chengdu 610054, China
3. Zhang, L., College of Microelectronics and Solid State Electronics, University of Electronics Science and Technology of China, Chengdu 610054, China