

Signal Enhancement with Matched Filter for Micro Flow Cytometry System

Kee Hyun Kim¹, Kwang Bok Kim¹, Sangyun Park³ and Hee Chan Kim^{2, 3*}

1. Interdisciplinary Program, Bioengineering Major, Graduate School, Seoul National University, Seoul 110-744, Korea
2. Department of Biomedical Engineering, College of Medicine, Seoul National University, Seoul 110-744, Korea
3. Institute of Medical & Biological Engineering, Medical Research Center, Seoul National University, Seoul 110-744, Korea

E-mail : khsk@melab.snu.ac.kr

In micro flow cytometry system with the aim of enabling a point-of-care-test (POCT), the size of blood corpuscle is an important information to count each number of erythrocytes, leukocytes, thrombocytes and to classify specific kind of leukocytes. However, there is numerous electrical noises in an environment of the POCT that can deteriorate the quality of signals seriously. On that account, an algorithm to improve signal-to-noise ratio (SNR) was proposed in this study. Data was collected from a novel microfluidic system which uses polyelectrolyte gel electrodes (PGE) with in situ photo polymerization of Diallyldimethylammonium chloride (DADMAC). The proposed algorithm was applied to the size detection of polystyrene beads in the electrolyte. Diameters of each bead are 5, 10, and 15 micrometer. Peak signals by the variation of impedance were ameliorated through matched filter algorithm.

References

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