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Simple Microfluidic Device for Simultaneous Extraction and Detection of Microplastics in Water using DC Electrical Signal

Alireza Zabihihesari[1], Arezoo Khalili[1], Mohammad-Javad Farshchi-Heydari[1], Armin Eilaghi[2], and Pouya Rezai[1,*]

[1] Department of Mechanical Engineering, York University, Toronto, ON, Canada

2 Department of Mechanical Engineering, Australian College of Kuwait, Kuwait

** Corresponding Author: BRG 433B, 4700 Keele St, Toronto, ON, M3J 1P3, Canada; Tel: +1-416-736-2100 ext. 44703; Email:* prezai@yorku.ca

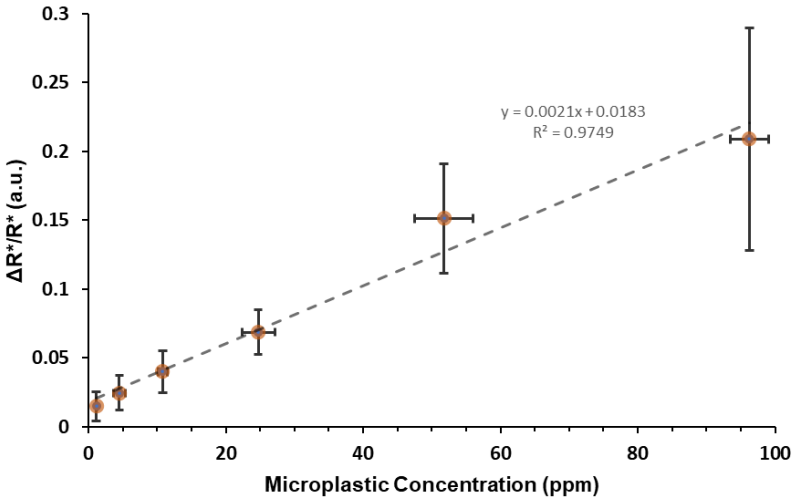

Figure S1: Dose-response measurement of the normalized resistance drop ($\frac{\Delta R^*}{R^*}$) for 1 µm polystyrene microplastic suspensions at 1ppm to 100 ppm concentrations. A hemocytometer was used for accurate measurement of the microplastic concentrations after sample preparation on the x axis of this graph. A positive linear correlation was found between the microplastic concentration and the normalized resistance drop. Error bars are SD.

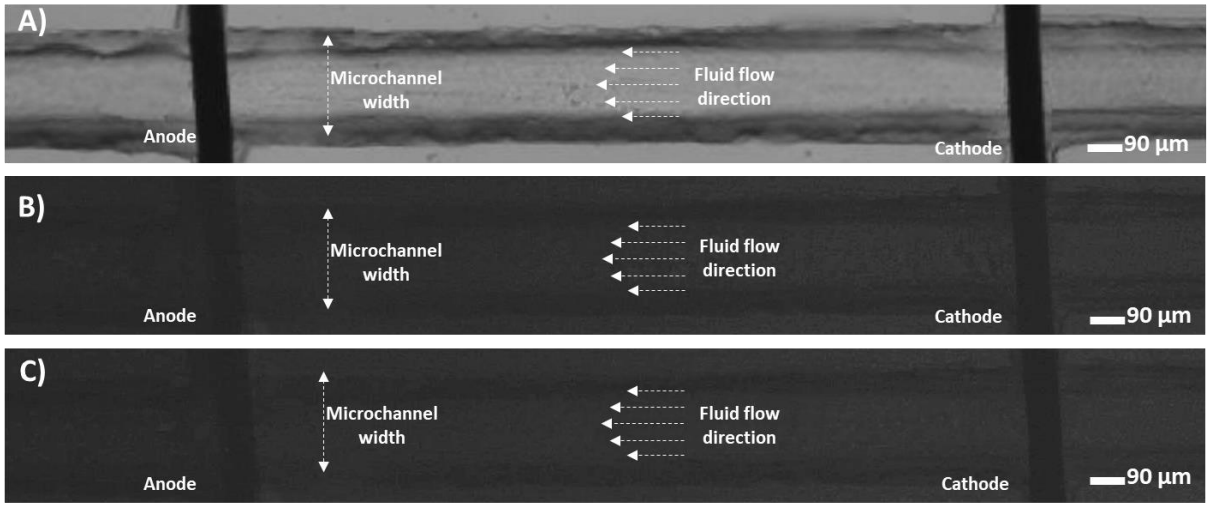

Figure S2: The sensing region of the microfluidic sensor (A) under bright field and (B-C) fluorescent mode with (B) DI water and (C) the blank solution flowing through the channel. No accumulation was observed around the microwires as expected due to lack of microplastics. The flow rate in these experiments was 0.2 mL/min. All images were captured 5 minutes after applying current.