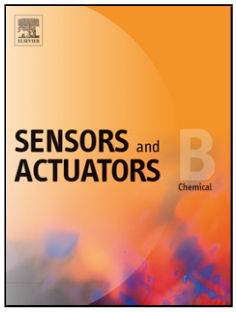

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Highlights

- This work demonstrated the first application of biomicrofluidics in ecotoxicology
- We developed Lab-on-a-Chip technology for perfusion culture of marine crustacean *Artemia franciscana* nauplii
- We introduced new platform for rapid water toxicity tests based on changes in swimming patterns exhibited by marine zooplankton
- We developed a proof-of-concept embedded "off-chip" interface for miniaturized behavioural biotests
- Microcontroller interface was implemented to enable real-time control over microfluidic flow control; and time-resolved imaging
- Using new technology we discovered two distinct behavioural syndromes as a response to chemical stressors exposure
- We postulate this enabling system will be a valuable asset for real-time synoptic water quality assessment

Enabling sub-lethal behavioral ecotoxicity biotests using microfluidic Lab-on-a-Chip technology

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