

NanoRatchet

University of Western Sydney inventors Dr Scott A. Willis, Prof William S. Price, A/Prof Gary R. Dennis and Dr Gang Zheng have developed an original design for a new separation technology called the **NanoRatchet**. The **NanoRatchet** can be constructed from nano-materials and upwards to achieve continuous flow separations at the molecular level through to (macroscopic) particle separations.

The ability to separate molecules, ions and particles is at the heart of many industries from mining to water analysis and treatment organisations. This is typically performed using complex and expensive batch separation methods.

A continuous flow separation is one in which separation occurs at an angle to the flow direction, allowing continuous addition, collection, analysis and monitoring.

Nano-materials enable the new separation mechanism to be used for small molecules.

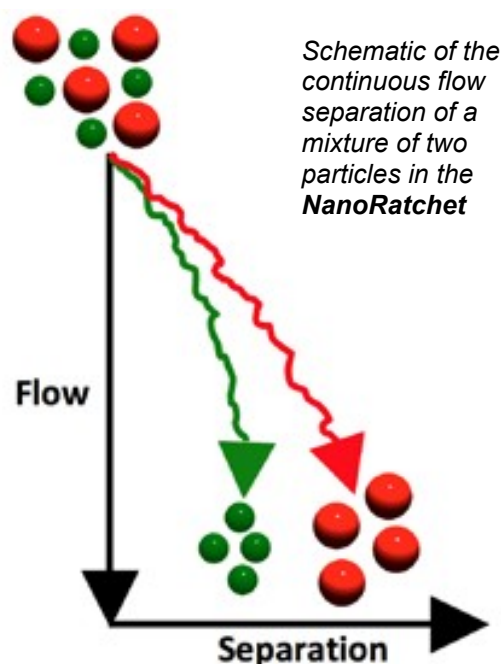
The **NanoRatchet** allows for continuous flow type separations of small molecules, ions and particles. It has potential for applications such as speciation and ion analysis or quality control monitoring through to (macroscopic) particle separations.

Status: Available for licensing

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Key Benefits

- Comparatively inexpensive
- Suited for 'in-line' applications
- Overcomes the expense and limitations associated with lithography techniques
- Alternative or complement to other high-end separation methods such as high performance chromatography
- Easily coupled to quick and cheap detection methods like voltammetry
- Useful for a pre-concentrator or component separator
- Scaled-up versions (i.e. macroscopic scale) are also possible for separating large particles and objects