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Single-electrolyte isotachophoresis : on-chip analyte focusing and separation

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Title: Single-electrolyte isotachopheresis : on-chip analyte focusing and separation

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Stellingen

- 1) Electric field gradient focusing = isotachophoresis
Chapter 2
- 2) Features of isotachophoresis and electric field gradient focusing may be combined at will, making each electric field gradient focusing approach a very versatile method for bioanalysis
Chapter 2
- 3) Isotachophoretic separations can be triggered at the border of ion-depleted zones
Chapter 3
- 4) Elastomeric microvalves in poly(dimethylsiloxane) devices can act as nanochannels upon closure
Chapter 5
- 5) A limitation for microfluidic systems is the “world-to-chip” interface: it is very difficult to deliver reagents and samples to such systems without compromising advantages of rapid analyses and reduced reagent consumption
Yang et al 2009, Analytical Chemistry 81 (3), p 1061
- 6) For small molecules, concentrations reflect and regulate enzymatic activity Bennet et al 2009, Nat Chem Biol. (5), p593. For large biomolecules, measurements of concentrations may be irrelevant because each copy can have different modifications. Therefore, metabolomics has the potential to develop into the most quantitative science of all "omics"
- 7) Cell biology has to deal with a uncertainty principle: one cannot measure cell dynamics and the full chemical content of a cell simultaneously
Shapiro et al 2013, Nature Reviews Genetics 14, p 621

- 8) Genetische processen gedurende de bevruchting definiëren een nieuw individu Sadler 2003, Langman's Medical Embryology, 9th ed., p 40. De beschermwaardigheid van het menselijk individu mag daarom gelden als een ethische beperking bij bioanalytische methoden en medische ingrepen die het menselijk embryo aangaan
- 9) "Niet van deze tijd" is een drogreden
- 10) Echt geloof en goede wetenschap kenmerken zich beiden door de voortdurende behoefte aan toetsing van eigen inzichten
- 11) Daar waar het geloof in God als hypothese ter discussie wordt gesteld, is een leven als christen een mooi experiment