



Universiteit  
Leiden  
The Netherlands

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

Quist, J.W.

### Citation

Quist, J. W. (2014, March 20). *Single-electrolyte isotachopheresis : on-chip analyte focusing and separation*. Retrieved from <https://hdl.handle.net/1887/24857>

Version: Corrected Publisher's Version

License: [Licence agreement concerning inclusion of doctoral thesis in the Institutional Repository of the University of Leiden](#)

Downloaded from: <https://hdl.handle.net/1887/24857>

**Note:** To cite this publication please use the final published version (if applicable).

Cover Page



Universiteit Leiden



The handle <http://hdl.handle.net/1887/24857> holds various files of this Leiden University dissertation

**Author:** Quist, Johannes Willem

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

**Issue Date:** 2014-03-20

# Single-Electrolyte Isotachophoresis

On-chip analyte focusing and separation

Proefschrift  
ter verkrijging van  
de graad van Doctor aan de Universiteit Leiden,  
op gezag van de Rector Magnificus prof.mr. C. J. J. M. Stolker,  
volgens besluit van het College voor Promoties  
te verdedigen op donderdag 20 maart 2014  
klokke 16:15 uur

door  
Johannis Willem Quist  
Geboren te Bergen op Zoom  
6 juli 1984

## **Promotiecomissie:**

### *Promotor:*

Prof. dr. Thomas Hankemeier

### *Co-promotores:*

Dr. Heiko van der Linden

Dr. Paul Vulto

### *Overige leden:*

Prof. dr. Juan Santiago (Stanford University)

Prof. dr. Hans Tanke (LUMC, Leiden)

Prof. dr. Ruud Berger (Universiteit Leiden)

Prof. dr. Meindert Danhof (Universiteit Leiden)

This study was financed by the research programme of the Netherlands Metabolomics Centre (NMC) which is a part of The Netherlands Genomics Initiative/Netherlands Organization for Scientific Research.

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

J.W. Quist

PhD thesis, Leiden University

ISBN/EAN: 978-90-74538-83-1

# Table of Contents

1.	General introduction	5
2.	Electric Field Gradient Focusing = Isotachophoresis: a Review	15
3.	Single-Electrolyte Isotachophoresis Using a Nanochannel-Induced Depletion Zone	53
4.	Tunable Ionic Mobility Filter for Depletion Zone Isotachophoresis	73
5.	PDMS Valves as Tunable Nanochannels for Concentration Polarization	95
6.	Conclusions and Perspectives	113
	Nederlandstalige samenvatting	117
	Dankwoord	123
	Curriculum Vitae	127
	Publicatielijst	128

