

## CURRICULUM VITAE

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Separation Science, Chiral Separations, Enantioselective Recognition, Pharmaceutical and Biomedical Analysis

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Research Interests

### 1. Education

Nº	Years	Name of the University/Institute, Country	Academic Degree	Major / Specialty
1	1998	Tbilisi State University, Tbilisi, Georgia	Habilitation in Physical Chemistry	Capillary Electrophoresis in Chiral Analysis
2	1981-1985	Institute of Organic Chemistry, Soviet Academy of Sciences, Moscow, Russia (former Soviet Union) (PhD degree awarded)	PhD in Physical Chemistry	Physical Chemistry (Asymmetric Catalysis)
3	1974-1979	School of Chemistry, Tbilisi State University, Tbilisi, Georgia	BS+MS in Chemistry (Chemistry Diploma with Excellence awarded)	Chemistry

### 2. Work Experience

Nº	Years	Position	Department / Unit	Organization
1	2006-current	Full Professor and Head of Department of Physical and Analytical Chemistry	Department of Physical and Analytical Chemistry School of Exact and natural Sciences	Tbilisi State University, Tbilisi, Georgia

2	2010-current	Director of the Institute of Physical and Analytical Chemistry	School of Exact and Natural Sciences	Tbilisi State University, Tbilisi, Georgia
3	2007-current	General Manager (CEO)		Enantiosep GmbH, Muenster, Germany
4	2007-current	Consultant		Phenomenex, Inc., Torrance, CA, USA
5	2004-current	Editor		Journal of Pharmaceutical and Biomedical Sciences, Elsevier, Amsterdam, The Netherlands
6	1998-2006	Full Professor, Chair of department of Physical Chemistry	Department of Physical Chemistry	Tbilisi State University, Tbilisi, Georgia
7	2002-2007	General Manager (CEO)		Sepaserve GmbH, Muenster, Germany
8	1991-1992, 1993-1995, 1997-2002	Visiting Researcher and Visiting Professor	Institute of Pharmaceutical and Medicinal Chemistry	University of Muenster, Muenster, Germany
9	1992, 1996, 1999, 2000, 2001, 2002, 2003, 2004	Visiting Scientist	Department of Engineering	Nagoya University, Nagoya, Japan
10	1985-1998	Docent (Associate Professor), Chair of Physical Chemistry, School of Chemistry	Department of Physical Chemistry, School of Chemistry	Tbilisi State University, Tbilisi, Georgia

### 3. Participation in Research Projects (over the last 5 years)

Nº	Years	Position / Responsibility	Project Title	Donor Organization
1	2017	Project coordinator	Study of enantioseparation mechanisms in capillary electrophoresis, 217642	Sh. Rustaveli National Science Foundation

2	2016	Project coordinator	Chemical and mathematical aspects of environmental monitoring, SS16-B-010	Sh. Rustaveli National Science Foundation
3	2017-2019	Project coordinator	Synthesis of chiral cyclic sulphoxides, separation of their enantiomers in high-performance liquid chromatography and study of molecular mechanisms of enantioseparations”	Georgian-Italian joint Research Project, supported by Sh. Rustaveli National Science Foundation / the National Research Council of Italy (CNR)
4	2015-2017	Project coordinator	Synthesis of chiral sulfoxides and hydantoin, separation of their enantiomers in high-performance liquid chromatography and study of molecular mechanisms of enantioseparations	
5	2014-2015	Project coordinator	Synthesis of novel chiral sulfoxides and their application for studies of enantiomer separation mechanisms in high-performance liquid chromatography	

#### 4. List of Publications in the International Peer Reviewed Journals (over the last 5 years)

Nº	Publication Title	Journal title, series, volume issue (publication date): page (s) or, book / monograph title, edition #, series publisher, city, year published
1	D'Orazio, G., Fanali, C., Karchkhadze, M., Chankvetadze, B., Fanali, S., Enantiomeric separation of some chiral analytes using amylose 3,5-dimethylphenylcarbamate covalently immobilized on silica by nano-liquid chromatography and capillary electrochromatography	J. Chromatogr. A 1520, 2017, 127-134
2	A. Salgado, E. Tatunashvili, A. Gogolashvili, B. Chankvetadze and F. Gago, Structural rationale for the chiral separation and migration order reversal of clenpenterol enantiomers in capillary electrophoresis using two different $\beta$ -cyclodextrins	Phys. Chem. Chem. Phys., 2017, 19, 27935-27939
3	A. Gogolashvili, E. Tatunashvili, L. Chankvetadze, T. Sohajda, J. Szemann, A. Salgado, B. Chankvetadze, Separation of enilconazole enantiomers in capillary electrophoresis with cyclodextrin-type chiral	Electrophoresis, 38, 2017, 1851-1859

	selectors and investigation of structure of selector-selectand complexes by using nuclear magnetic resonance spectroscopy	
4	B. Chankvetadze, Liquid Chromatographic Separation of Enantiomers, Book Chapter in: Handbook of Separation Science: Liquid Chromatography: Applications. Edited by S. Fanali, P. Haddad, C. Poole, and P. Schoenmakers, 2 <sup>nd</sup> Edition	Elsevier, pp. 69-86, 2017
5	I. Matarashvili, D. Ghughunishvili, L. Chankvetadze, N. Takaishvili, M. Tsintsadze, T. Khatiashvili, T. Farkas, B. Chankvetadze, Separation of enantiomers of chiral weak acids with polysaccharide-based chiral columns and aqueous mobile phases in high-performance liquid chromatography: Typical reversed-phase behavior?	J. Chromatogr. A, 1483 (2017) 86-92
6	L. Bezhitashvili, A. Bardavelidze, T. Ordjonikidze, T. Farkas, M. Chity, B. Chankvetadze, Effect of pore-size optimization on the performance of polysaccharide-based superficially porous chiral stationary phases for separation of enantiomers in high-performance liquid chromatography	J. Chromatogr. A, 1482 (2017) 32–38
7	S. Gokadze, L. Gogilashvili, L. Amiranashvili, V. Barbakadze, M. Merlani, A. Bakuridze, A. Salgado, B. Chankvetadze, Investigation of Water-Soluble High Molecular Preparation of Symphytum grandiflorum DC (Boraginaceae)	Bulletin of the Georgian National Academy of Sciences, 11 (1), 2017, 115-121
8	Separation of enantiomers of selected chiral sulfoxides with cellulose tris(4-chloro-3-methylphenylcarbamate)-based chiral columns in high-performance liquid chromatography with very high separation factor, T. Khatiashvili, R. Kakava, I. Matarashvili, H. Tabani, C. Fanali, A. Volonterio, T. Farkas, B. Chankvetadze	Journal of Chromatography A, in press
9	An attempt for fast separation of enantiomers in nano-liquid chromatography and capillary electrochromatography, G. D’Orazio, R. Kakava, A. Volonterio, S. Fanali, B. Chankvetadze	Electrophoresis, 38(15): 1932-1938, 2017
10	Enantioseparation of novel chiral sulfoxides on chlorinated polysaccharide stationary phases in supercritical fluid chromatography, C. West, M.-L. Konjaria, N. Shashviashvili, E. Lemasson, P. Bonnet, R. Kakava, A. Volonterio, B. Chankvetadze	Journal of Chromatography A 1499, 174-182, 2017

11	Recent developments on polysaccharide-based chiral stationary phases for liquid-phase separation of enantiomers, B. Chankvetadze	J. Chromatogr. A, 1269 (2012) 26– 51
12	HPLC separation of enantiomers of chiral arylpropionic acid derivatives with emphasis on elution order using polysaccharide-based chiral columns and normal-phase eluents, I. Matarashvili, L. Chankvetadze, S. Fanali, T. Farkas, B. Chankvetadze	J. Sep. Sci., 2013, 36, 140-147
14	Use of Novel Phenyl-Hexyl Core-Shell Particles in nano-Liquid Chromatography, S. Fanali, S. Rocchi, B. Chankvetadze	Electrophoresis, 2013, 34, 1737-1742
15	The chiral triazole fungicide difenoconazole: absolute stereochemistry, stereoisomer bioactivity, aquatic toxicity and environmental behavior in vegetable and soil, F. Dong, J. Li, B. Chankvetadze, Y. Cheng, X. Liu, J. Xu, X. Chen, Y. Li, C. Bertucci, D. Tedesco, R. Zanasi, Y. Zheng	Environmental Science & Technology, 47, 2013, 3386-3394
16	Recent developments on polysaccharide-based chiral stationary phases for liquid-phase separation of enantiomers, B. Chankvetadze	Methods in molecular biology (Clifton, N.J.), v. 970, 2013, 81-111
17	Enantioseparations by High Performance Liquid Chromatography Using Polysaccharide-Based Chiral Stationary Phases, B. Chankvetadze	Book Chapter, Chiral Separations: Methods and Protocols, 2 <sup>nd</sup> edition, Editor. G.K.E. Scriba, Humana Press/Springer, Chapter 5, pp. 81-111, 2013
18	Separation of Enantiomers, B. Chankvetadze	Book Chapter in: Handbook of Separation Science: Liquid Chromatography, Edited by S. Fanali, P. Haddad, C. Poole, and P. Schoenmakers, Elsevier, pp 75-91, 2013.
19	Comparative enantioseparation of ketoprofen with trimethylated $\beta$ - and $\gamma$ -cyclodextrins in capillary electrophoresis and study of related selector-selectand interactions by using nuclear magnetic resonance spectroscopy, S. Samakashvili, A. Salgado, G. Scriba, B. Chankvetadze	Chirality, 2013, 25, 79–88

20	<p>Papadopoulos, Green Asymmetric Synthesis: <math>\beta</math>-Amino Alcohol-Catalyzed Direct Asymmetric Aldol Reactions in Aqueous Micelles,</p> <p>A. Pinaka, G. C. Vougioukalakis, D. Dimotikali, E. Yannakopoulou, B. Chankvetadze, K.</p>	Chirality, 2013, 25, 119-125
21	<p>HPLC separation of dihydropyridine derivatives enantiomers with emphasis on elution order using polysaccharide-based chiral columns,</p> <p>G. Jibuti, A. Mskhiladze, N. Takaishvili, L. Chankvetadze, M. Karchkhadze, T. Farkas, B. Chankvetadze</p>	J. Sep. Sci., 35 (2012) 2529-2537
22	<p>Evaluation of novel amylose and cellulose-based chiral stationary phases for the enantiomer separation of flavanones by means of nano-liquid chromatography,</p> <p>K. Si-Ahmed, Z. Aturki, B. Chankvetadze, S. Fanali, , Anal. Chim. Acta</p>	738 (2012) 85-94
23	<p>Comparative enantioseparations of pharmaceuticals in capillary electrochromatography on polysaccharidebased chiral stationary phases containing selectors with or without chlorinated derivatives,</p> <p>A. Hendrickx, D. Mangelings, B. Chankvetadze, Y.Vander Heyden</p>	AgBioForum, 15 (2012) 3207-3216
24	<p>Comparative separation of enantiomers with totally porous and coreshel polysaccharide-based chiral stationary phases in nano liquid chromatography and capillary electrochromatography,</p> <p>S. Fanali, G. D' Orazio, T. Farkas, B. Chankvetadze</p>	J. Chromatogr. A, 1269 (2012) 136-142
25	<p>Comparative enantioseparation of talinolol in aqueous and non-aqueous capillary electrophoresis and study of related selector-selectand interactions by using nuclear magnetic resonance spectroscopy,</p>	J. Chromatogr. A, 1267 (2012) 206-216

	L. Chankvetadze, A.-C. Servais, M. Fillet, A. Salgado, J. Crommen, B. Chankvetadze	
26	Separation of enantiomers of norephedrine by capillary electrophoresis using cyclodextrins as chiral selectors: Comparative CE and NMR studies, K. Lomsadze, E. Domínguez Vega, A. Salgado, A. L. Crego, G. K.E. Scriba, M. L. Marina, B. Chankvetadze	Electrophoresis, 2012, 33, 1637-1647
27	Enantioseparation of Selected Chiral Epoxides with Polysaccharide-based Chiral Columns in High-performance Liquid Chromatography, K. Lomsadze, M. Merlani, V. Barbakadze, T. Farkas, B. Chankvetadze	Chromatographia, 2012, 75, 839-845
28	Optimization of the LC enantioseparation of chiral acidic compounds using cellulose tris(3-chloro-4-methylphenylcarbamate) as chiral selector and polar organic mobile phases, K.S.S. Dossou, E. Farcas, A.-C. Servais, P. Chiap, B. Chankvetadze, M. Fillet, J. Crommen	J. Chromatogr. A, 2012, 1234, 56-63
29	Evaluation of new cellulose-based chiral stationary phases Sepapak-2 and Sepapak-4 for the enantiomeric separation of pesticides by nano-LC and CEC, V. Pérez-Fernández, E. Dominguez-Vega, B. Chankvetadze, A. L. Crego, M. Ángeles García, M. Luisa Marina	J. Chromatogr. A, 2012, 1234, 22-31
30	Comparative high-performance liquid chromatography enantioseparations on polysaccharide based chiral stationary phases prepared by coating totally porous and core-shell silica particles, K. Lomsadze, G. Jibuti, T. Farkas, B. Chankvetadze	J. Chromatogr. A, 2012, 1234, 50-55

##### 5. Participation in International Forums/Conferences (up to 5 events)

Nº	Year	Event title	Venue	Presentation title
1	2017	PittCon 2017	Chicago, IL, USA	Development and optimization of a method for HPLC-separation of enantiomers with polysaccharide-based chiral columns, PittCon 2017, March 6-10, 2017

2	2017	2nd Phenoprep India Symposium	Hyderabad, India	New effects on Lux series of chiral stationary phases and new members of the family
3	2017	HPLC 2017 Prague	Prague, Czech Republic	Recent trends in application of polysaccharide-based chiral selectors for liquid phase separation of enantiomers, 45th International Symposium on High-Performance Liquid Phase Separations and Related Techniques
4	2017	28th International symposium on Pharmaceutical and Biomedical Analysis, PBA 2017	Madrid, Spain	Recent developments in enantioseparation of chiral drugs
5	2017	11th Balaton Symposium on High-Performance Separation Methods	Siofok, Hungary	Recent developments in liquid-phase separation of enantiomers by using polysaccharide derivatives as chiral selectors

#### 6. List of Patents (up to 5 patents)

№	Date	Title of Invention	Patent-granting Organization, Country
1	2008	Y. Okamoto, C. Yamamoto, B. Chankvetadze, Separating agent for optical isomers, method of production thereof and separation column for optical isomers	US 2008/0167460 A1, Filled on 05.03,2008. Published 10.07.2008
2	2006	Y. Okamoto, C. Yamamoto, B. Chankvetadze, Separating agent for optical isomers, method of production thereof and separation column for optical isomers	EP 1 500 430 A3, date of filling 28.05.2004, Date of publication: A2 26.01.2005, A3 24.05.2006
3	2005	Y. Okamoto, T. Yamamoto, B. Chankvetadze, Separating agent for optical isomers, method of production thereof and separation column for optical isomers	JP2003155414, Date of publication 21.01.2005
4	2004	B. Chankvetadze, D. Bergenthal, H. Wennemer, Vorrichtung zur Trennung von Substanzgemischen mittels Flüssigchromatographie	Application number: 102 60 700.1. Application date: 24.12.2002. Anmelde­nummer: 10260700. Veröffentlichungsdatum: 08.07.2004

5	2004	Y. Okamoto, C. Yamamoto, B. Chankvetadze, Separating agent for optical isomers, method of production thereof and separation column for optical isomers	US 2004/0262229 A1, date of filling 27.05.2004, Date of publication: 30.12.2004
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### 7. Additional Information (International Awards, Fellowships, etc.)

B. Chankvetadze is the editor of the Journal of Pharmaceutical and Biomedical Analysis (Elsevier, Netherlands) and the editorial board member of following international journals: Journal of Chromatography A, Electrophoresis, Journal of Separation Science, Electrophoresis, Chirality, Acta Chromatographica and several other journals.

B. Chankvetadze is the recipient of “Journal of Chromatography Top Cited Article Award”-s in 2005, 2006 and 2010, the recipient of “2006 Belgian Society of Pharmaceutical Science Award of Recognition”, Recipient of the “Best Scientist of the Year 2016” award of the Shota Rustaveli Georgia National Science Foundation, The recipient of Csaba Horvath Medal jointly from the Hungarian Society for Separation Science and Connecticut Separation Science Council (USA) (2017).

B. Chankvetadze is the member of the permanent scientific committee of several international symposia, including annual International Symposia on Electrodriven and Liquid-phase Separation Techniques, International Symposia on Pharmaceutical and Biomedical Analysis, etc. B. Chankvetadze is an organizer of 17th International Symposium on Electrodriven and liquid-phase Separation Techniques (2011) and 26th International Symposium on Pharmaceutical and Biomedical Analysis (2015) in Tbilisi, Georgia. He has frequently been a plenary and key lecturer, as well chair of scientific sessions at international conferences, has reported more than 250 oral presentations at international conferences, universities and companies abroad.

B. Chankvetadze has been working as member of grant awarding committee in Italy, Belgium, Poland, Czech Republic and Australia.

Publications by B. Chankvetadze have been cited over 7500 (including monograph - Capillary Electrophoresis in Chiral Analysis, 1997, Wiley & Sons, Chichester, UK, 555pp) according to Scopus and his current H index is 49 (citations on the monograph is not automatically searchable and is traceable by the source).

B. Chankvetadze is Full Member of the Georgian National Academy of Sciences.

