CURRICULUM VITAE

HANIA USCKA-WEHLOU, PH.D.

I. PERSONAL DATA:

- Born in Wąbrzeźno (Poland), February 10, 1973.
- Citizenships: Polish and Swedish.
- Married, 2 children (a daughter born 2002 and a son born 2005).
- Lives in Uppsala (Flintstensvägen 10, SE-752 67 Uppsala).
- Countries of residence:
  (1) Poland (February 1973 – December 1995)
  (2) Belgium (January 1996 – October 2001)
  (3) Sweden (October 2001 – onwards).
- Phone: 073-960.01.23, 018-46.88.73.
- E-mail: hania@wehlou.com, hania.uscka.wehlou@math.uu.se.
- Home page: http://wehlou.com/hania/cv.htm, http://katalog.uu.se/profile/?id=N3-1379, www.mitm.se.
- Current employment: at Uppsala University (as a Senior Lecturer *Lektor* in mathematics) and at MITM AB (working on a project on mathematical terminology in several languages).

II. EDUCATION:

- January 2012 – finished Business Lab (a three months long course) at Uppsala Innovation Center.
- **25 September 2009 – Ph.D. in mathematics** from Uppsala University (Ph.D. student 2003–2009, of which 19 months on maternity leave). Thesis: *Digital Lines, Sturmian Words, and Continued Fractions*. Advisor: Professor Christer Kiselman.
- September 1997 – M.Sc. in theoretical mathematics (with pedagogical qualifications) from Copernicus University in Toruń (Poland). Graduated with top honors. Thesis: *Continuation method for contractions and applications in differential calculus*. Advisor: Professor Andrzej Granas.
- June 1992 – graduated from Liceum IV in Toruń, Poland. I was educated in a class with a strong mathematical program, with math teachers from the Department of Mathematics at the Copernicus University. I participated four times in the Mathematical Olympiad and twice reached the national final in Warsaw. I also won a stipendium of the National Foundation for Exceptionally Gifted Children during this period. Graduated from high school as *Primus inter pares*.

Date: May 29, 2018.

III. SCHOLARSHIPS AND AWARDS:

- *Det elektrotekniska pedagogiska priset 2018*: the pedagogical award from the programme *Elektroteknik* (Electrical Engineering) at Uppsala University (May 2018).
- *F-lärarutmärkelsen*[1]: the pedagogical award from the programme *Teknisk fysik* (Engineering Physics) at Uppsala University (May 2018).
- (for my company MITM AB) Funding for feasibility study for *iotaMed*, ALMI Företagspartner (2013).
- (for my company MITM AB) Funding for commercial verification of our medical record *iotaMed*, Innovationsbron (2013).
- *Benzeliusbelöning i fysisk-matematiska klassen* from Kungliga Vetenskaps-Societeten in Uppsala for the research in digital geometry and combinatorics on words (2010).
- Magnuson Scholarship, The Royal Swedish Academy of Sciences (Kungliga Vetenskapsakademien) (2010).
- The Lennander Scholarship, Uppsala University (2010).

IV. LANGUAGES:

- Polish (native speaker).
- Swedish (near to native speaker; TISUS certificate, Swedish on academic level).
- English (fluent).
- Dutch (fluent).
- Russian (reading, understanding, some speaking).

V. PROFESSIONAL CERTIFICATES:

- September 1997: Polish teaching license *kwalifikacje pedagogiczne* (Mathematics for secondary school and high school).
- June 2000: Belgian teaching license *geaggregeerde voor het secundair onderwijs — groep 2* (Mathematics for secondary school and high school).
- August 2017: Swedish teaching license *Lärarlegitimationen*: *Ämneslärare i matematik med behörighet för grundskolan åk 3–9, gymnasiet, gymnasiets introduktionsprogram, vuxenutbildning grundläggande nivå och gymnasienivå, Sameskolan.*

VI. PROFESSIONAL EXPERIENCE:

- 2017-08-15 – onwards: employed at Uppsala University as a full-time *Lektor* (Senior Lecturer) in mathematics. 70 % of the full-time: teaching four courses (both lectures and classes): Geometry and Calculus (in one variable), Linear Algebra and Geometry 1, Calculus 3 (in several variables), Derivatives and Integrals, LaTeX; 30 % of the full-time: research project on mathematical terminology in different languages.
- 2017-01-09 – 2017-06-09: employed at *Peabskolan AB* in Solna (Stockholm) as a part-time (50 %) maths teacher: teaching mathematics Mat1a and Mat2a.

[1]Det är ett pris som går till en lärare, föreläsare eller labbhandledare vid tekniska fysiker programmet i Uppsala, som utmärkt sig pedagogiskt och varit framstående i sin undervisning.

- 2016-08-10 – 2016-10-31: employed at *Lundellska gymnasiet* in Uppsala as a full-time substitute teacher. Courses: mathematics Mat1b, Mat2b, and Mat9 at SPRINT (language introduction programme for students learning Swedish as a foreign language).
- 2016-04-04 – 2016-06-10: employed at *Sjögrenska gymnasiet* in Knivsta as a part-time (70 %) substitute teacher: teaching mathematics (56 %: Mat1a and Mat9) and English (14 %: Engelska5).
- 2013-09-12 – onwards: employed at my own company MITM AB, working on literary translations from Swedish to Polish (see list VII below) and (since September 2015) preparing a translation and research project on mathematical terminology in different European languages: *Multilingual Mathematics*, in cooperation with the Scandinavian Research Centre (Department of Applied Linguistics) in Warsaw, Institute of Slavic Languages at Stockholm University, and the Department of Mathematics and Science Education at Stockholm University. The book to be translated is *Matematiktermer för skolan* by Christer Kiselman and Lars Mouwitz.
- 2010-08-01 – 2016-08-09: employed at MITM AB, working as marketing manager for a new medical record *iotaMed*.
- 2009-11-01 – 2010-07-31: worked on the project *Mathematical methods in modeling and analysis of concurrent systems* in cooperation with the Group of Formal Languages and Concurrency from the Faculty of Mathematics and Computer Science of the Copernicus University in Toruń. During the period 2010-02-01 – 2010-07-31 this project was officially run by the Department of Computer Science at Uppsala University. My scientific advisor was Professor Parosh Aziz Abdulla. I got two scholarships for this project: one of them (the Lennander Scholarship) form Uppsala University, the second one (Magnuson scholarship) from The Royal Swedish Academy of Sciences.
- 2003-07-01 – 2009-09-30 (maternity leave 2005-06-07 – 2007-01-01): Uppsala University. Ph.D. position in The Graduate School in Mathematics and Computing (FMB), teaching (one-dimensional calculus).
- 2002-02-02 – 2003-06-30: maternity leave.
- 2001-10 – 2002-01: free student at Uppsala University.
- 2001-04 – 2001-09: Software dev. at Cactus Computing BVBA (Ghent, Belgium).
- 2000-10-15 – 2001-03-31: VUB (Flemish University of Brussels). I worked in the project EXPLOOT led by Professor Ivan Cnop (planning, designing, and writing lesson packages in *Mathematica* for students); some teaching. I was proposed to prolong the contract with VUB but I did not accept it because I knew I would move to Sweden.
- 2000-05 – 2000-10: Software developer at Quadrat NV (Ghent, Belgium).
- 1997-09 – 2000-05: Sales Assistant Eastern Europe at LANO Carpets (Harelbeke, Belgium). This was my first language-related job; I was using Dutch, Polish, English and Russian on a daily basis.

VII. LITERARY TRANSLATIONS FROM SWEDISH TO POLISH:

- *En riktig människa* by Gunilla Gerland (published in Poland in October 2015 by Wolters Kluwer Polska)

- *Millans äventyr* by Milena Bergquist (ready; publishing in Poland is being discussed with the publisher 'Zakamarki')
- *Mycket mera Millan* by Milena Bergquist (ready, not yet published)
- *Modiga Millan* by Milena Bergquist (ready, not yet published)
- *Millan - hästar, hundar och hår under armarna* by Milena Bergquist (ready, not yet published)
- *Matematiktermer för skolan* by Christer Kiselman and Lars Mouwitz (planned).

VIII. MY RESEARCH INTERESTS:

- Combinatorics on words.
- Combinatorial aspects of theoretical computer science (Petri nets, theory of traces).
- Current main research interests: mathematics and languages – linguistic and didactical approach.

IX. MY RESEARCH UNTIL SEPTEMBER 2009:

My research until September 2009 was focused on arithmetical properties of digital straight lines with irrational slopes, and, consequently, on Sturmian words. I defended my Ph.D. Thesis *Digital Lines, Sturmian Words, and Continued Fractions* on September 25 (2009).

X. MY MOST IMPORTANT PUBLICATIONS:

07-1 Uscka-Wehlou, Hanna, 2007. Digital lines with irrational slopes. *Theoretical Computer Science* **377**, 157–169.

08-1 Uscka-Wehlou, Hanna, 2008. Continued Fractions and Digital Lines with Irrational Slopes. In D. Coeurjolly et al. (Eds.): DGCI 2008, LNCS **4992**, pp. 93–104.

08-2 Uscka-Wehlou, Hanna, 2008. A run-hierarchical description of upper mechanical words with irrational slopes using continued fractions; 15 pp. In *Proceedings of 12th Mons Theoretical Computer Science Days (Mons, Belgium), 27–30 August 2008*. http://www.jmit.ulg.ac.be/jm2008/index-en.html.
Preprint: http://wehlou.com/hania/files/uu/mons08rev.pdf.

09-1 Uscka-Wehlou, Hanna, 2009. Run-hierarchical structure of digital lines with irrational slopes in terms of continued fractions and the Gauss map. *Pattern Recognition* **42**, 2247–2254.

09-2 Uscka-Wehlou, Hanna, 2009. Two equivalence relations on digital lines with irrational slopes. A continued fraction approach to upper mechanical words. *Theoretical Computer Science* **410** (38–40), 3655–3669.

09-3 Uscka-Wehlou, Hanna, 2009. Sturmian words with balanced construction; 12 pp. In *Proceedings of Words 2009, the 7th International Conference on Words (Salerno, Italy), 14–18 Sept. 2009*. http://words2009.dia.unisa.it/accepted.html.
Preprint: http://wehlou.com/hania/files/uu/words2009.pdf.

09-4 Uscka-Wehlou, Hanna, 2009. *Digital Lines, Sturmian Words, and Continued Fractions*. Ph.D. Thesis, 152 pp. In *Uppsala Dissertations in Mathematics* **65**. ISBN: 978-91-506-2090-0.

10-1 Uscka-Wehlou, Hanna, 2010. Continued fractions, Fibonacci numbers, and some classes of irrational numbers. Published in *Acta Mathematica Academiae Paedagogicae Nyíregyháziensis* **26(1)**.

XI. CONFERENCE TALKS AND OTHER SCIENTIFIC PRESENTATIONS:

- 2003-12-15: Presentation *Digital lines* at the Seminar of the Centre for Image Analysis, Uppsala.
- 2004-11-15–16: Presentation *Digital lines* during the FMB-FMD Open House Conference, Uppsala University.
- 2005-01-24: Presentation *Theory of digital lines* at the Seminar of the Centre for Image Analysis, Uppsala.
- 2008-04-16–18: The 14th International Conference on Discrete Geometry for Computer Imagery, DGCI 2008 (Lyon, France). Poster and a short oral presentation *Continued Fractions and Digital Lines with Irrational Slopes*.
- 2008-08-27–30: The 12th Mons Theoretical Computer Science Days, JM 2008 (Mons, Belgium). Conference talk *A run-hierarchical description of upper mechanical words with irrational slopes using continued fractions*.
- 2008-11-07–08: Sonja Kovalevskydagarna (for *gymnasium*-pupils from all over Sweden) at Uppsala University: I was a workshop leader for the workshop called *Groups* and I was a member of the problem-solving group.
- 2009-09-14–18: The 7th International Conference on Words, Words 2009 (Salerno, Italy). Conference talk *Sturmian words with balanced construction*.
- 2009-09-25: Presentation of my Ph.D. thesis *Digital Lines, Sturmian Words, and Continued Fractions* at Uppsala University. The faculty Opponent: Dr. Damien Jamet (Nancy); the members of the Grading Committee: Dr. Petter Brändén (Stockholm University and the Royal Institute of Technology), Docent Rikard Bögvad (Stockholm University), Professor Isabelle Debled-Rennesson (Laboratoire Lorrain de Recherche en Informatique et ses Applications, Nancy), Professor Anders Heyden (Lund University), and Docent Warwick Tucker (Uppsala University).
- 2009-10-27: Presentation *Classes of irrational numbers defined by their continued fraction expansions* at the Seminar *Automorfizmy i derywacje* in the Faculty of Mathematics and Computer Science of the Copernicus University in Toruń, PL.
- 2009-12-02: Presentation *Some combinatorial problems related to digital straight lines with irrational slopes and to balanced aperiodic words* at the Combinatorics Seminar at KTH, the Royal Institute of Technology, Stockholm, Sweden.
- 2010-02-22–25: Scientific visit at the Faculty of Mathematics and Computer Science of the Copernicus University in Toruń, Poland. Discussions about the project *Mathematical methods in modeling and analysis of concurrent systems* during a workshop on Petri nets and traces, organized by the group *Formal Languages and Concurrency*.
- 2010-07-19–23: Participation in the Workshop MASYW 2010 (Mathematical methods in modeling and analysis of concurrent systems) in Tleń (Poland) organized by the research group *Formal Languages and Concurrency* from the Faculty of Mathematics and Computer Science of the Copernicus University in Toruń, Poland.

XII. TEACHING EXPERIENCE (IN SWEDISH, AT UPPSALA UNIVERSITY):

- Autumn term 2003 (20 % of my full-time job at UU): One-Dimensional Calculus (*Endimensionell analys*), classes for students of the engineering program. Lecturer: Leif Abrahamsson.
- Spring term 2004 (20 % of my full-time job at UU): One-Dimensional Calculus (*Endimensionell analys*), classes for students of the engineering program. Lecturer: Leif Abrahamsson.
- Autumn term 2004 (20 % of my full-time job at UU): Calculus I (*Analys MN1*), classes for student of the natural sciences program. Lecturer: Thomas Erlandsson.
- Spring term 2007 (10 % of my full-time job at UU): Calculus I (*Analys MN1*), classes for student of the natural sciences program. Lecturer: Warwick Tucker.
- Spring term 2008 (10 % of my full-time job at UU): Single Variable Calculus (*Envariabelanalys*), classes for students of the geology program and of the teaching program. Lecturer: Jörgen Östensson.
- Spring term 2009 (10 % of my full-time job at UU): Single Variable Calculus (*Envariabelanalys*), classes for students of the IT program. Lecturer: L. Abrahamsson.
- Autumn term 2017 (**my first term as a full-time Senior Lecturer in Mathematics at UU**): Head teacher (*huvudlärare*) for *Geometry and Single Variable Calculus* **1MA187**; lectures and classes for students of the Bachelor Programme in Physics and the Physics Teachers Programme (57 students).
- Autumn term 2017: Course director (*kursansvarig*) for *Linear Algebra and Geometry 1* **1MA025**; lectures and classes for various engineering progr. (218 students).
- Spring term 2018: Course director (*kursansvarig*) for *Calculus 3*, **1MA016**/**1MA183** (*Flervariabelanalys*), lectures and classes for various engineering programmes and of the Bachelor Programme in Mathematics (342 students).
- Spring term 2018: Course director (*kursansvarig*) for *A Mathematical Project with* LaTeX, **1MA193**, for students of the Bachelor Programme in Maths (11 students).
- Autumn term 2018: Head teacher (*huvudlärare*) for *Geometry and Single Variable Calculus* **1MA187**; lectures and classes for students of the Bachelor Programme in Physics and the Physics Teachers Programme.
- Autumn term 2018: Course director (*kursansvarig*) for *Calculus 3*, **1MA016** (*Flervariabelanalys*), lectures and classes for various engineering programmes, teaching training programme and the Bachelor Programme in Chemistry.
- Spring term 2019: Course director (*kursansvarig*) for *Calculus 3, Limited course*, **1MA017** (*Flervariabelanalys*), lectures for the Bachelor Programme in IT and for the Master Programme in Materials Engineering.
- Spring term 2019: Course director (*kursansvarig*) for *Derivatives and Integrals*, **1MA014** (*Derivator och integraler*), lectures and classes for Bachelor Programme in Earth Science.

XIII. TEACHING EXPERIENCE (IN VARIOUS HIGH SCHOOLS IN SE) FROM 2016:

Mat9, **Mat1a**, **Mat2a**, **Mat1b**, **Mat2b**. I am qualified to teach any maths courses in high schools. Teaching experience at Uppsala University was very near to combination of **Mat3c**, **Mat4** and **Mat5**, both the courses' content and the age of the students.

XIV. TEACHING MATERIAL WRITTEN BY ME:

- Autumn 2000, *Complexe getallen* ('Complex numbers', in Dutch), an interactive Mathematica notebook designed, programmed and written by me during my work for the Exploot project (led by Professor Ivan Cnop) at the Flemish University of Brussels, Belgium. The notebook has been used as teaching material for Dutch speaking students. It can be found on the home page of Exploot (you have to click on "Fourier en complexe analyse" left on the page, then click on "complexe getallen" left on the next page).
- Spring 2001, *Complexe veeltermen* ('Complex polynomials', in Dutch), as above.
- Spring 2001, *Complexe getallen en de meetkunde* ('Complex numbers and geometry', in Dutch), as above.
- November 2008, *Minnesanteckningar för deltagarna i workshop GRUPPER* ('Notes for the participants of the workshop GROUPS', in Swedish), notes I wrote for the *Sonja Kovalevskydagarna* at Uppsala University.
- September 2016, *Repetitionshäfte Matte2b, kapitel 1 Origo2* (10 pages), notes I wrote for my students at Lundellska Gymnasiet: theory and exercises preparing for the test.
- January 2017, *Repetitionshäfte Matte1a* (31 pages), based on *Liber*'s textbook: notes I wrote for my students at Peabskolan: theory and exercises.
- January 2017, *Repetitionshäfte Matte2a* (17 pages), based on *Liber*'s textbook: notes I wrote for my students at Peabskolan: theory and exercises.

XV. CONFERENCE TALKS AND PRESENTATIONS ON iotaMed:

- 2012-04-17: Presentation *iotaMed, quality registries and Snomed CT* (jointly with Martin Wehlou) at the largest healthcare IT congress Vitalis in Gothenburg: http://youtu.be/gdxmccOZ6xg (in Swedish).

XVI. TALKS, ASSIGNMENTS AND PUBLICATIONS ON MATHEMATICAL TERMINOLOGY AND DIDACTICS:

- 2016-04-11: Presentation *Översättarverkstan: autismens språk – matematikens språk (on translating mathematical terminology)* at the seminar on Polish language at Stockholm University (Department of Slavic Languages). Invited by Professor Maria Zadencka. https://vimeo.com/162868038/b47d9f35ff (in Swedish).
- September 2016: I examined the translation (from Swedish into Polish) of the survey materials which will be used for establishing the level of maths skills of Polish children who are newly moved from Poland to Sweden. I got this assignment from *Skolverket* (the Swedish National Agency for Education).
- Kiselman, Christer O., Uscka-Wehlou, Hania, 2017. *Bråk och språk–vad som är förnuftigt och logiskt.* In *Nämnaren* (journal for maths teachers) 2017:1, pp. 45–49. Göteborg: Göteborgs universitet, Nationellt centrum för matematikutbildning.
- Kiselman, Christer O., Uscka-Wehlou, Hania, 2017. *Falska vänner, vassa vrår och språkliga fällor.* In *Nämnaren* 2017:2, pp. 43–51. Göteborg: Göteborgs universitet, Nationellt centrum för matematikutbildning.

- 2017-05-12: Presentation *Mathematics and languages* during a conference for teachers of the Polish language in Sweden organised by Stockholm University and the Swedish Institute: https://vimeo.com/217304561 (in Swedish).
- 2017-10-06: Presentation and workshop *Interactions between mathematics and languages in learning and teaching* for native-language teachers in Södertälje (3 hours: a lecture plus workshop for about 90 teachers teaching about 40 different languages). Invited by Mary-Anne Eliasson.
- 2017-10-30: Lecture *How uninterrupted is continuous?* for high-school teachers in mathematics at Uppsala University. Invited by Veronica Crispin Quinonez.
- Uscka-Wehlou, Hania, 2018. *Svansklippning och andra förtjusande matematiska aktiviteter*. In *Nämnaren* (journal for maths teachers) 2018:1, pp. 55–61. Göteborg: Göteborgs universitet, Nationellt centrum för matematikutbildning.
- 2018-01-25–26: Presentation *Languages for mathematics: sometimes helpful, sometimes not; with examples from several European languages* during a conference for maths teachers *Matematikbiennalen 2018* in Karlstad.
- 2018-02-06: Presentation *Interactions between mathematics and languages in learning and teaching* for students of the teacher training progr. at Uppsala University.
- 2018-02: Review of *About evolution of Matura examinations in Mathematics in the years 1789–1935* for the journal *Antiquitates Mathematicae* (Annales Societatis Mathematicae Polonae Series).

XVII. OTHER LANGUAGE RELATED TALKS AND PRESENTATIONS:

- 2016-09-26: Lecture (in Swedish) about languages Polish and Dutch during the *European Day of Languages 2016* at Lundellska Gymnasiet in Uppsala (for 17-years old Swedish speaking students; on invitation of language teachers: Ewa Charlotte Berg and Anna Gullefors).

XVIII. REFERENCES:

- Professor Christer Kiselman (my main advisor during my Ph.D. studies), Uppsala, Sweden; christer.kiselman@it.uu.se, 070-887.07.08.
- Inger Sigstam, Ph.D., Director of Studies and Senior Lecturer in mathematics at Uppsala University (my direct supervisor during the academic year 2017/18), Inger.Sigstam@math.uu.se, 018-471.32.23.
- Leif Abrahamsson, Ph.D. (program director at International Science Programme; he was the main lecturer for the courses I taught during my Ph.D. studies), Uppsala, Sweden; Leif.Abrahamsson@isp.uu.se, 070-167.91.16.
- Shiva Samieinia, Ph.D., researcher at Stockholm University (we were in the same research group during our Ph.D. studies); 073-980.80.57.