

CV Torbjörn Lundh

1. **Studenten**, Sundstagsgymnadiet, Karlstad, 5.0
2. **Högskoleexamen**,
Civilingenjörsexamen, 1989, teknisk fysik.
3. **Doktorsexamen**,
1996, matematik/potentialteori, *Kleinian groups and thin sets at the boundary*,Handledare: Matts Essén
4. **Postdoktorsvistelser**
i) 1997 Cambridge, UK
ii) 1997-1999, SUNY, Stony Brook, NY
iii) 1999-2000, Institut Mittag-Leffler, Djursholm
5. **Sabbatical**
Visiting professor at Vascular Surgery, Stanford, CA, augusti 2015 till juni 2016.
6. **Docentkompetens** 2004
7. **Specialistexamen eller motsvarande**
Biträdande professor på Chalmers, 2010-10-18
8. **Nuvarande anställning (Present position)**,
Biträdande professor
9. **Tidigare anställningar**
”Tillfällig lektor” KTH, 1996.
10. **Upphåll i forskningen. (Interruption in research).**
2004-2005 50 % föräldraledig. Vice ordförande fakultetsrådet (2011 – till 2015) 10 %
11. **Handledning**
 - Jonatan Vasilis, Tekn. Dr, okt 2010, *Harmonic measures*
 - Sofia Tapani, Tekn Dr, november 2011, *Stochastic modelling and analysis of early mouse development.*
 - Jacob Leander, Tekn. Lic, september 2014, *Mixed-effects modeling using stochastic differential equations.*

Nuvarande huvud (handledare till:

- Ove Granstrand
- Anders Karlsson
- Tim Cardilin
- Valentina Fermanielli

- **Mentor för postdoktor**

Dr. Jun Udagawa from Shimane University, Japan, 2007

12. Övrig information av betydelse för ansökan

- **Konferensarrangerande:**
 - **2nd Swedish conference on mathematical biology, 16-17 december, 2010**
 - **Aimday Image, 13 mars, 2013**
 - **Pseudovetenskap - en oskyldig lek eller en allvarlig parasit?, 25 april, 2013**
 - **9th European Conference on Mathematical and Theoretical Biology, 15-19 juni 2014**
- **Övriga uppdrag:**
 - Vice ordförande för Göteborgs Centrum för Systembiologi
 - Profilledare för matematisk biologi i styrkeområdet livsvetenskaper
 - Skapare och organisatör av **mathbio.se**
 - Member in the educational board at the Faculty of Science at Göteborg University, “grundutbildningberedning” 2003-2006.
 - Coordinator of the math. department’s participation in the yearly scientific festival in Gothenburg, vetenskapsfestivalen 2002-2010
 - Member in the editorial group for the N!, the Faculty of Science magazine at the University of Gothenburg. 2004-2009
 - Director of the Mathematics Consultants at the department. 2008-2011
 - Chairman of the Swedish Committee on Education in Mathematics 2008-2011

- Chairman of the Collegium at Mathematical Sciences. 2009-2011
- Chairman of the Swedish National Committee for Mathematics under KVA, 2011-2015
- Chairman of Matts Esséns minnesfond. 2004-2014
- Vice Chairman of Chalmers' Faculty Board 2011-2015
- Program developer of the teacher training program at Chalmers: Learning and Leadership
- Member of the board of Chalmers Foundation, 2011-2015 (Fonden gav 2015 en avkastning på 156 mkr)
- Board member in Folkuniversitet Göteborg
- Vice president of European Society of Mathematical and Theoretical Biology
- Head organizer of ECMTB 2014
- Inspector of Chalmers Student Union

Startade företag:

- Mamillicon HB (ett innovationsbolag för viltvarningssystem, flera delutmärkelser i VentureCup)
- [GraftCraft](#) AB (utvecklingsbolag inom medicin teknik, speciellt mot grafter och stentar)
- y-Graft AB (dotterbolag till GraftCraft AB med en ny by-pass)
- [PressCise](#) AB (innovationsbolag inom medicinsk kompressionsbehandlingsteknik)
- Anamathics AB (konsultbolag med inriktning på analys med hjälp av matematiska verktyg)

Erhållna projektbidrag inom medtech:

- GöteborgBIO
- Innovationskontor Väst
- Almi
- BIO-X
- Smart Textiles
- VINN-verifiering
- Skapa Utvecklingsstipendium (regionsvinnare 2014)
- Curamus foundation

Refereebedömda artiklar sedan april 2006

Minimal Martin boundary points of a John domain and unions of convex sets. J. Math. Soc. Japan, 58, no. 1, 247–274 (2006), with H. Aikawa and K. Hirata.

Which ball is the roundest? – a suggested stability index for tournaments. Journal of Quantitative Analysis in Sports, Article 1, Volume 2, Issue 3: 1-21, (2006).

Morphometric study on the characteristic external features of normal and abnormal human embryos. Congenit Anom Kyoto. 48(1) p. 18-28, (2008) with H. Otano, J. Udagawa, T. Hatta, R. Hashimoto, A. Matsumoto, and F. Satow.

The Emergence of Overlapping Scale-free Genetic Architecture in Digital Organisms, Artificial Life Vol. 14, No. 3: 265–275, (2008).

Gene divergence and pathway duplication in the metabolic network of yeast and digital organisms. Journal of the Royal Society Interface. 6 s. 1233-1245. Nr. 95730, (2009), with Gerlee, P.

A model of sympatric speciation through reinforcement Kinetic and Related Models. 3 (1) s. 143-163. Nr. 112216, (2010), with Henriksson, J. and Wennberg, B.

Productivity and diversity in a cross-feeding population of digital organisms. *Evolution*. 64 s. 2716–273, 2010, with Gerlee, P.

Cross- and triple-ratios of human body parts during development *Anatomical Records* 294:1360-1369. (2011) with Udagawa J, Hänel SE and Otani H.

Mathematical analysis of mandibular morphogenesis by micro-CT-based mouse and alizarin red S-stained-based human studies during development *Anatomical Records*, 295 (2) s. 313, (2012), with A. Rafiq, J. Udagawa, E. Jahan, J. Sekine, H. Otani.

Effects of space in the game “war of attrition”, *Phys. Rev. E* 85, 041115 (2012), with P. Gerlee.

Cross-feeding dynamics described by a series expansion of the replicator equation, *Bull. Math. Biology*, 75 (5) s. 709-724, (2013) with P. Gerlee.

Stochastic differential equations as a tool to regularize the parameter estimation problem for continuous time dynamical systems given discrete time measurements. *Mathematical Biosciences and Engineering*. 251 s. 54-62, with Leander, J.; Jirstrand, M. (2014).

Wrange, A-L. ; André, C. ; Lundh, T. et al. (2014). Importance of plasticity and local adaptation for coping with changing salinity in coastal areas: a test case with barnacles in the Baltic Sea. *BMC Evolutionary Biology*. 14 s. artikel 156. [Nr. 199766]

Leander, J. ; Lundh, T. ; Jirstrand, M. (2014). Stochastic differential equations as a tool to regularize the parameter estimation problem for continuous time dynamical systems given discrete time measurements. *Mathematical Biosciences*. 251 s. 54-62. [[Nr. 195122](#)]

Referebedömda konferensbidrag sedan 2006

Three dimensional mathematical modelling of pronuclei migration for the mouse. *Stereology and Image Analysis. ECS10: Proceeding of the 10th European Conference of ISS.*, (V.Capasso et al. Ed.), The MIRIAM Project Series. 4 s. 1-6. ISBN/ISSN: 978-88-7488-310-3 Nr. 99257, with Tapani, S.; Udagawa, J. et al. (2010).

Rock-Scissor-Paper dynamics in a digital ecology, *Proceedings of the Twelfth International Conference on the Synthesis and Simulation of Living Systems*. s. 285-295. 2010, ISBN/ISSN: 0-262-29075-8, with P. Gerlee.

Pseudovetenskap – Hur rustar vi våra studenter att bemöta detta? , KUL 2013 – Chalmers Konferens om Undervisning och Lärande. with Galt, S. (2013).

Celander, M. C. ; Wiklander, K. ; Lundh, T. (2015). DEVELOPMENT OF ALTERNATIVE MATHEMATICAL TOOLS TO ASSESS SYNERGISTIC MIXTURE EFFECTS , *18th International symposium on Pollutant Responses in Marine Organisms (PRIMO18)*. [[Nr. 215891](#)]

Finnsgård, C. ; Larsson, L. ; Lundh, T. et al. (2015). High Performance Sailing in Olympic Classes - a Research Outlook and Proposed Directions, *Proceedings, 5th High Performance Yacht Design Conference, Auckland, 8-11 March 2015*. s. 141-149. ISBN/ISSN: 978-1-909024-37-3 [[Nr. 215230](#)]

Översiktsartiklar, bokkapitel

Everyday calculus teaching. Emanuelsson, J., Fainsilber, L., Häggström, J., Kullberg, A., Lindström, B. & Löwing, M. (Eds.), Voices on learning and instruction in mathematics. National Centre for Mathematics Education, University of Gothenburg. s. 101-116. Nr. 118266, (2010)

Bok på svenska

Vetenskapliga modeller – Svarta lådor, röda atomer och vita lögner. Lund: Studentlitteratur. ISBN/ISSN: 978-91-44-07420-7, (2012), med Philip Gerlee.

Patent

New vascular prosthesis, Lundh, T.; Mattsson, E. , Swedish pat. no. SE 531 374 C2 (2009).

Removable Stent and Method of Production, WO2012084007, Lundh, T.; Mattsson, E. (2012).

ERNEY-GRAFTEN-P-US, US-21043007, Lundh, T.; Mattsson, E. (2014).

Elastic bandage and textile material for use in such an elastic bandage, WO 2015007335 A1, Lundh, T.; Mattsson, E.; Vasilis, J. (2015).

Dessutom ett flertal, ännu ej offentliga, patentansökningar.

Populärvetenskapliga presentationer sedan 2006:

Responsible from 2007 to 2009 for the mathematical contribution to the yearly scientific week in Göteborg called Vetenskapsfestivalen.

NTA-boxes from KVA, writing "A mathematician's view-point" 2009.

En civiliserad matematisk kväll i humanismens tecken, Vetenskapsfestivalen i Göteborg, 6 maj, 2009

Pseudovetenskap - en oskyldig lek eller en allvarlig parasit? 25 april 2013

Bengmark, S. ; Lundh, T. ; Cronhjort, M. et al. (2014). Skolan missar nya lärare med spetskompetens. NyTeknik, 27 augusti 2014. [Nr. 203106]

Lundh, T. ; Bengmark, S. (2014). Politiker missar på nytt det centrala . Svenska Dagbladet, Opinion, Brännpunkt 4 april 2014. s. 6. [Nr. 197196]

Ja, ja men vad är då liv egentligen? Vetenskapsfestivalen i Göteborg, 16/4 2015.

Egenutvecklade allmänt tillgängliga datorprogram

Urdar – a digital ecology platform: <http://www.math.chalmers.se/~torbjrn/Urdar/urdar.html>
med Philip Gerlee

Presentationer på konferenser och inbjudna seminarier sedan 2006

Minisymposium on dynamical systems. Trondheim, Norway, Jan. 12 2006
The Gothenburg Centre for Theoretical Biology och Ekologisk Zoologi,, 17 oktober, 2006
Multiphysics meeting, Copenhagen, Nov.1-2, 2006
Analytic morphogenesis, Dundee, Nov. 7
Morphological computations, Venice, 26-30 mars, 2007
PDE & Mathematical Biology, KTH, Stockholm, July 9-11, 2007
Björn Gustafsson meeting, KTH, Oct. 15-17, 2007
Morphogenesis meeting, Gothenburg, 14-15 nov, 2007
Sonja Kovalevsky-dagarna, Nov. 16-17, 2007
Hokkaido University, Sapporo Jan. 24, 2007
Tokyo University, Jan. 22, 2007
Shimane University, Jan. 15, 2007
Symposiet för forskning om lärande och undervisning i tematik, Göteborg, 10/3, 2008.
Science for a better life, ESOF, Barcelona, 17-18 July, 2008.
ALife XI, Southampton, UK, 5 augusti, 2008
Random models in science, engineering and medicine, Smögen, Aug.18-22, 2008.
Sonja Kovalevsky-dagarna, Uppsala, Nov. 7-8, 2008.
Spetsutbildningar i matematik, Norra Latin, Nov. 13, 2008.
International Symposium, Mathematical Analysis of Developmental Phenomena,
ShimaneUniversity, Matsue, Japan, Nov. 23, 2008.
Toward the elucidation of the developmental origins of diseases, Izumo, Japan, 30/10, 2009
First Swedish meeting on Theory and Mathematics in Biology and Medicine, 17/12, 2009
Matematikbiennalen, Stockholm, 28 januari, 2010
Niels Bohrinstitutet, Köpenhamn, Danmark, 31 mars, 2010
Mathematical Models for Biological Systems, Università di Trento,10/2, 2011
Svensk-Koreanskt biomatematikmöte, KVA, 14 april, 2011
European Conference on Mathematical and Theoretical Biology, Krakow, 29 juni, 2011
European Conference on Artificial Life, Paris,8-12/8, 2011
3rd Swedish meeting on Mathematics in Biology, Umeå, 14–16 december, 2011
Matematikbiennalen, Umeå universitet, 26 januari, 2012
CeMEB-meeting,Tjärnö, 10 oktober, 2012
4th Swedish meeting on Mathematics in Biology, 10/12 2012
Image Analysis SSBA 2013, Göteborg, 14 mars, 2013
Chalmers möter friidrotten, 24 april 2013
Park Annual, Göteborg, 12 september, 2013

Integrated Mathematical Oncology, Moffitt Cancer Center, Tampa, FL, 17 januari, 2014

From the clinic to pde and back, ICERM, Brown University, RI, 20 januari 2014

Matematikbiennalen i Umeå, 7 februari 2014

Life Science Monday Seminary, 10 februari, 2014

Medtech & Biomaterials, A well-defined compression bandage pressure is a far stretch of the truth today, but tomorrow PressCise can give you a precise pressure, Göteborg, 4 mars 2014

Sport & Smarta Textilier, Chalmers, 27 mars 2014 ECMTB, Minisymposia: Game Theory in Ecology and Evolution, Cross-feeding as a game, Göteborg, 16 juni

Moderator Park Annual, 11 september, Sahlgrenska Science Park.

Svenska Medicinteknikdagarna, Knitted mathematical solutions to three vascular surgery problems, Göteborg, 15 oktober 2014

MedtechWest seminar, Three cardiovascular problems solved by mathematics and realized by knitting, Sahlgrenska, Göteborg, 26 februari, 2015.

The ecology of innovation, SACF Korea, Hanyang University, Seoul, Sydkorea, 21 april 2015

A removable stent, CVI annual retreat, Stanford, USA, 27 oktober 2015

Real Cardiovascular Problems, Resolved by Mathematics and Realized by Knitting, Biomathematic Seminar, UCLA, 10 december 2015.