

Björn Gustafsson

Curriculum Vitae (short version)

March 16, 2022

1 Personal data

Full name with spelling as in passport: Björn Sture Lennart Gustavsson.

Date/place of birth: October 30, 1947, Stockholm

Affiliation: Department of Mathematics, KTH, 100 44 Stockholm.

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2 Academic degrees and present position

Civil engineer, Engineering physics, 1972, KTH

TeknD (Doctor of technology), 1981, KTH. Supervisor: Harold S.Shapiro.

Docent in mathematics, 1987, KTH.

Positions at KTH:

- Stipends and assistant positions 1972-1981.
- Research assistant 1981-1987.
- Lecturer 1987-2005.
- Professor 2005-2014.
- Current status: Professor emeritus.

3 Scientific activity

Research areas: Complex analysis, potential theory, mathematical physics.

Grants and similar: Continuous support from NFR/VR 1987-2010, occasional grants from KVA, Göran Gustafssons stiftelse.

Networks: HCAA/ESF (2007–2012).

4 Doctoral and postdoctoral students

- Yuan Tian: dissertation June 3, 1994 at KTH.
- Tomas Sjödin: dissertation May 31, 2005 at KTH.
- Joakim Roos: dissertation August 30, 2016 at KTH.

- Olga Kouznetsova, postdoc 2003,
- Yu-Lin Lin, postdoc 2011-2014.

5 Selected publications

1. B. Gustafsson: *Quadrature identities and the Schottky double*, Acta Applicandae Mathematicae **1** (1983), 209–240.
2. B. Gustafsson: *Applications of variational inequalities to a moving boundary problem for Hele Shaw flows*, SIAM J. Math. Anal. **16** (1985), 279–300.
3. B. Gustafsson: *On quadrature domains and an inverse problem in potential theory*, J. Analyse Math. **55** (1990), 172–216.
4. B. Gustafsson, H. Shahgholian: *Existence and geometric properties of solutions of a free boundary problem in potential theory*, J. Reine Angew. Math. **473** (1996), 137–179.
5. B. Gustafsson, M. Sakai, H.S. Shapiro: *On domains in which harmonic functions satisfy generalized mean-value properties*, Potential Anal. **7** (1997), 467–484.
6. B. Gustafsson: *On mother bodies of convex polyhedra*, SIAM J. Math. Anal. **29:5** (1998), 1106–1117.
7. B. Gustafsson, M. Putinar: *An exponential transform and regularity of free boundaries in two dimensions*, Ann. Scuola Norm. Sup. Pisa Cl. Sci. **98** (1998), 507–543.
8. B. Gustafsson, M. Sakai: *On potential theoretic skeletons of polyhedra*, Geom. Dedicata **76** (1999), 1–30.
9. B. Gustafsson, B. Heron, J. Mossino: *Γ -convergence of stratified media with measure-valued limits*, Asymptotic Analysis **22** (2000), 261–302.
10. B. Gustafsson, M. Putinar: *The exponential transform: a renormalized Riesz potential at critical exponent*, Indiana Univ. Math. J. **52** (2003), 527–568.
11. B. Gustafsson, A. Vasil'ev: *Conformal and Potential Analysis in Hele-Shaw-Cells* (231 pp.), ISBN 3-7643-7703-8, Birkhäuser Verlag, 2006.
12. B. Gustafsson, V. Tkachev: *The resultant on compact Riemann surfaces*, Comm. Math. Phys. **286** (2009), 313–358.

13. B. Gustafsson, M. Putinar, E.B. Saff, N. Stylianopoulos: *Bergman polynomials on an archipelago: Estimates, zeros and shape reconstruction*, Adv. Math. **222** (2009), 1405–1460.
14. B. Gustafsson, A. Sebbar: *Critical points of Green's function and geometric function theory and geometric function theory*, Indiana Univ. Math. J. **61** (2012), 939–1017.
15. B. Gustafsson, Yu-Lin Lin: *On the dynamics of roots and poles for solutions of the Polubarinova-Galin equation*, Ann. Acad. Sci. Fenn. Math. **38** (2013), 259–286.
16. B. Gustafsson, R. Teodorescu, A. Vasil'ev: *Classical and Stochastic Laplacian Growth*, (315 pp.), Advances in Mathematical Fluid Mechanics, ISBN 978-3-319-08286-8, Birkhäuser Verlag, 2014.
17. B. Gustafsson, M. Putinar: *Hyponormal quantization of planar domains*, Lecture Notes in Mathematics 2199, ISBN 978-3-319-65809-4, Springer-Verlag, 2017.
18. B. Gustafsson, J. Roos: *Partial balayage on Riemannian manifolds*, J. Math. Pures Appl., **118** (2018), 82–127.
19. B. Gustafsson, M. Putinar: *A field theoretic operator model and Cowen-Douglas class*, Banach J. Math. Anal. **13** (2019), 338–358.
20. B. Gustafsson: *Vortex motion and geometric function theory: the role of connections*, Philosophical Transactions of the Royal Society A **377** (2019), DOI 10.1098/rsta.2018.0341.
21. B. Gustafsson, Yu-Lin Lin: *Laplacian growth on branched Riemann surfaces*, Lecture Notes in Mathematics 2287, ISBN 978-3-030-69862-1, Springer-Verlag, 2021.