Publications

[1] Anton Thalmaier, Asymptotik Brownscher Bewegungen. *Regensburger Mathematische Schriften* **22** (1989).

[2] Wolfgang Hackenbroch and A. Thalmaier, *Stochastische Analysis. Eine Einführung in die Theorie der stetigen Semimartingale.* (560 pages). Stuttgart: Teubner, 1994.

[3] Anton Thalmaier, Brownian motion and the formation of singularities in the heat flow for harmonic maps. *Probab. Theory Relat. Fields* **105** (1996) 335–367.

[4] Anton Thalmaier, Martingales on Riemannian manifolds and the nonlinear heat equation. *Stochastic analysis and applications* (Powys, 1995), World Sci. Publ., River Edge, NJ, 1996, 429–440.

[5] Anton Thalmaier, On the differentiation of heat semigroups and Poisson integrals. *Stochastics and Stochastics Reports* **61** (1997) 297–321.

[6] Anton Thalmaier and Feng-Yu Wang, Gradient estimates for harmonic functions on regular domains in Riemannian manifolds. *J. Funct. Anal.* **155** (1998) 109–124.

[7] Marc Arnaudon and Anton Thalmaier, Stability of stochastic differential equations in manifolds. *Séminaire de Probabilités*, XXXII, 188–214. Lecture Notes in Math. **1686**. Berlin: Springer, 1998.

[8] Marc Arnaudon and Anton Thalmaier, Complete lifts of connections and stochastic Jacobi fields. *J. Math. Pures Appl.* **77** (1998) 283–315.

[9] Anton Thalmaier, Some remarks on the heat flow for functions and forms. *Electron. Comm. Probab.* **3** (1998) 43–49.

[10] Marc Arnaudon, Xue-Mei Li and A. Thalmaier, Manifold-valued martingales, changes of probabilities, and smoothness of finely harmonic maps. *Ann. Inst. H. Poincaré Probab. Statist.* **35** (1999) 765–792.

[11] Marc Arnaudon and Anton Thalmaier, Bismut type differentiation of semigroups. *Prob. Theory and Math. Stat. (Vilnius, 1998)*, 23–32, VSP/TEV, Utrecht and Vilnius, 1999.

[12] Bruce K. Driver and Anton Thalmaier, Heat equation derivative formulas for vector bundles. *J. Funct. Anal.* **183** (2001) 42–108.

[13] Marc Arnaudon, Robert O. Bauer and Anton Thalmaier, A probabilistic approach to the Yang-Mills heat equation. *J. Math. Pures Appl.* **81** (2002) 143–166.

[14] Hélène Airault, Paul Malliavin and Anton Thalmaier, Support of Virasoro unitarizing measures. *C. R. Acad. Sci. Paris, Ser. I,* **335** (2002) 621–626.

[15] Marc Arnaudon and Anton Thalmaier, Horizontal martingales in vector bundles. *Séminaire de Probabilités*, XXXVI, 419–456. Lecture Notes in Math. **1801**. Berlin: Springer, 2003.

[16] Marc Arnaudon and Anton Thalmaier, Yang-Mills fields and random holonomy along Brownian bridges. *Ann. Probab.* **31** (2003) 769–790.

[17] Emilio Barrucci, Paul Malliavin, Maria Elvira Mancino, Roberto Renò and Anton Thalmaier, The price-volatility feedback rate: an implementable mathematical indicator of market stability. *Mathematical Finance* **13** (2003) 17–35.

[18] Marc Arnaudon, Holger Plank and Anton Thalmaier, A Bismut type formula for the Hessian of a heat semigroup. *C. R. Acad. Sci. Paris, Ser. I,* **336** (2003) 661–666.

[19] Paul Malliavin and Anton Thalmaier, Numerical error for SDE: Asymptotic expansion and hyperdistributions. *C. R. Acad. Sci. Paris, Ser. I,* **336** (2003) 851–856.

[20] Anton Thalmaier and Feng-Yu Wang, Derivative estimates of semigroups and Riesz transforms on vector bundles. *Potential Anal.* **20** (2004) 105–123.

[21] Ana Bela Cruzeiro, Paul Malliavin and Anton Thalmaier, Geometrization of Monte-Carlo numerical analysis of an elliptic operator: strong approximation. *C. R. Acad. Sci. Paris, Ser. I,* **338** (2004) 481–486.

[22] Hélène Airault, Paul Malliavin and Anton Thalmaier, Canonical Brownian motion on the space of Jordan curves and resolution of Beltrami equations by a continuity method along stochastic flows. *J. Math. Pures Appl.* **83** (2004) 955–1018.

[23] Paul Malliavin and Anton Thalmaier, *Stochastic Calculus of Variations in Financial Mathematics.* Springer Finance. Springer-Verlag, Berlin, 2005.

[24] Marc Arnaudon, Anton Thalmaier and Feng-Yu Wang, Harnack inequality and heat kernel estimates on manifolds with curvature unbounded below. *Bull. Sci. Math.* **130** (2006) 223–233.

[25] Marc Arnaudon, Bruce K. Driver and Anton Thalmaier, Gradient estimates for positive harmonic functions by Stochastic Analysis. *Stochastic Processes Appl.* **117** (2007) 202–220.

[26] Marc Arnaudon, Kohélè A. Coulibaly and Anton Thalmaier, Brownian motion with respect to a metric depending on time; definition, existence and applications to Ricci flow. *C. R. Acad. Sci. Paris, Ser. I,* **346** (2008) 773–778.

[27] Marc Arnaudon, Anton Thalmaier and Stefanie Ulsamer, Existence of non-trivial harmonic functions on Cartan-Hadamard manifolds of unbounded curvature. *Math. Zeitschrift* **263** (2009) 369–409.

[28] Marc Arnaudon, Anton Thalmaier and Feng-Yu Wang, Gradient estimate and Harnack inequality on non-compact Riemannian manifolds. *Stochastic Processes Appl.* **119** (2009) 3653–3670.

[29] Shizan Fang, Dejun Luo and A. Thalmaier, Stochastic differential equations with coefficients in Sobolev spaces. *J. Funct. Anal.* **259** (2010) 1129–1168.

[30] Marc Arnaudon and Anton Thalmaier, Li-Yau type gradient estimates and Harnack inequalities by Stochastic Analysis. *Advanced Studies in Pure Mathematics* **57** (2010) 29–48.

[31] Hélène Airault, Paul Malliavin and Anton Thalmaier, Brownian measures on Jordan-Virasoro curves associated to the Weil-Petersson metric. *J. Funct. Anal.* **259** (2010) 3037–3079.

[32] Marc Arnaudon and Anton Thalmaier, The differentiation of hypoelliptic diffusion semigroups. *Illinois J. Math.* **54** (2010) 1285–1311.

[33] Marc Arnaudon, Kohélè A. Coulibaly and Anton Thalmaier, Horizontal diffusion in C^1 path space. *Séminaire de Probabilités*, XLIII, 73–94, Lecture Notes in Math. **2006**. Berlin: Springer, 2011.

[34] Anton Thalmaier, Paul Malliavin (10 September 1925 – 3 June 2010). *Eur. Math. Soc. Newsl.* **81** (2011) 17–20.

[35] Anton Thalmaier and Feng-Yu Wang, A stochastic approach to a priori estimates and Liouville theorems for harmonic maps. *Bull. Sci. Math.* **135** (2011) 816–843.

[36] Marc Arnaudon and Anton Thalmaier, Brownian motion and negative curvature. *Random Walks, Boundaries and Spectra*, Progress in Probability, Vol. 64, 145–163. Springer Basel, 2011.

[37] Hongxin Guo, Robert Philipowski and Anton Thalmaier, Entropy and lowest eigenvalue on evolving manifolds. *Pacific J. Math.* **264** (2013) 61–82.

[38] Hongxin Guo, Robert Philipowski and Anton Thalmaier, A note on Chow's entropy functional for the Gauss curvature flow. *C. R. Math. Acad. Sci. Paris* **351** (2013) 833–835.

[39] Marc Arnaudon, Anton Thalmaier and Feng-Yu Wang, Equivalent Harnack and gradient inequalities for pointwise curvature lower bound. *Bull. Sci. Math.* **138** (2014) 643–655.

[40] Hongxin Guo, Robert Philipowski and Anton Thalmaier, A stochastic approach to the harmonic map heat flow on manifolds with time-dependent Riemannian metric. *Stochastic Processes Appl.* **124** (2014) 3535–3552.

[41] Hongxin Guo, Robert Philipowski and Anton Thalmaier, An entropy formula for the heat equation on manifolds with time-dependent metric, application to ancient solutions. *Potential Analysis* **42** (2015) 483–497.

[42] Hongxin Guo, Robert Philipowski and Anton Thalmaier, Martingales on manifolds with time-dependent connection. *J. Theoret. Probab.* **28** (2015) 1038–1062.

[43] Robert Philipowski and Anton Thalmaier, Heat equation in vector bundles with time-dependent metric. *J. Math. Soc. Japan* **67** (2015) 1759–1769.

[44] Hongxin Guo, Robert Philipowski and Anton Thalmaier, On gradient solitons of the Ricci-Harmonic flow. *Acta Math. Sinica, English Series* **31** (2015) 1798–1804.

[45] Erlend Grong and Anton Thalmaier, Curvature-dimension inequalities on sub-Riemannian manifolds obtained from Riemannian foliations: Part I. *Math. Zeitschrift* **282** (2016) 99–130.

[46] Erlend Grong and Anton Thalmaier, Curvature-dimension inequalities on sub-Riemannian manifolds obtained from Riemannian foliations: Part II. *Math. Zeitschrift* **282** (2016) 131–164.

[47] Anton Thalmaier, Geometry of subelliptic diffusions. In: *Dynamics, geometry and analysis on sub-Riemannian manifolds*, Vol. II. (D. Barilari, U. Boscain, M. Sigalotti, eds.) EMS Series of Lectures in Mathematics (ELM), Zürich: European Mathematical Society, 2016, pp. 85–169.

[48] Li-Juan Cheng and Anton Thalmaier, Characterization of pinched Ricci curvature by functional inequalities. *J. Geom. Anal.* **28** (2018) no. 3, 2312–2345.

[49] Li-Juan Cheng and Anton Thalmaier, Spectral gap on Riemannian path space over static and evolving manifolds. *J. Funct. Anal.* **274** (2018) 659–684.

[50] Li-Juan Cheng and Anton Thalmaier, Evolution systems of measures and semigroups properties on evolving manifolds. *Electron. J. Probab.* **23** (2018), paper no. 20, 27 pp.

[51] Li-Juan Cheng, Anton Thalmaier and James Thompson, Quantitative C^1-estimates by Bismut formulae. *J. Math. Anal. Appl.* **465** (2018) no. 2, 803–813.

[52] Li-Juan Cheng, Anton Thalmaier and James Thompson, Uniform gradient estimates on manifolds with a boundary and applications. *Analysis and Mathematical Physics* **8** (2018), no. 4, 571–588.

[53] Li-Juan Cheng, Anton Thalmaier and James Thompson, Functional inequalities on manifolds with non-convex boundary. *Sci. China Math.* **61** (2018), no. 8, 1421–1436.

[54] Erlend Grong and Anton Thalmaier, Stochastic completeness and gradient representations for sub-Riemannian manifolds. *Potential Analysis* **51** (2019), no. 2, 219–254.

[55] Anton Thalmaier and James Thompson, Derivative and divergence formulae for diffusion semigroups. *Ann. Probab.* **47** (2019), no. 2, 743–773.

[56] Fabrice Baudoin, Erlend Grong, Kazumasa Kuwada and Anton Thalmaier, Sub-Laplacian comparison theorems on totally geodesic Riemannian foliations. *Calc. Var. Partial Differential Equations* **58** (2019), no. 4, Art. 130, 38 pp.

[57] Anton Thalmaier and James Thompson, Exponential integrability and exit times of diffusions on sub-Riemannian and metric measure spaces. *Bernoulli* **26** (2020), no. 3, 2202–2225.

[58] Batu Güneysu and Anton Thalmaier, Scattering theory without injectivity radius assumptions, and spectral stability for the Ricci flow. *Ann. Inst. Fourier (Grenoble)* **70** (2020), no. 1, 437–456.

[59] Fabrice Baudoin, Erlend Grong, Kazumasa Kuwada, Robert Neel and Anton Thalmaier, Radial processes for sub-Riemannian Brownian motions and applications. *Electron. J. Probab.* **25** (2020), paper no. 97, 1–17.

[60] Marc Arnaudon, Anton Thalmaier and Feng-Yu Wang, Gradient estimates on Dirichlet and Neumann eigenfunctions. *Int. Math. Res. Not. IMRN* **2020** (2020), no. 20, 7279–7305.

[61] Li-Juan Cheng, Anton Thalmaier and Shao-Qin Zhang, Exponential contraction in Wasserstein distance on static and evolving manifolds. *Rev. Roumaine Math. Pures Appl.* **66** (2021), no. 1, 107–129.

[62] Li-Juan Cheng, Erlend Grong and Anton Thalmaier, Functional inequalities on path space of sub-Riemannian manifolds and applications. *Nonlinear Analysis* **210** (2021), 112387, 30 pp.

[63] Qin-Qian Chen, Li-Juan Cheng and Anton Thalmaier, Bismut-Stroock Hessian formulas and local Hessian estimates for heat semigroups and harmonic functions on Riemannian manifolds. *Stochastics and Partial Differential Equations: Analysis and Computations* **11** (2023), no. 2, 685–713.

[64] Li-Juan Cheng and Anton Thalmaier, Dimension-free Harnack inequalities for conjugate heat equations and their applications to geometric flows. *Analysis & PDE* **16** (2023), no. 7, 1589–1620.

[65] Li-Juan Cheng, Anton Thalmaier and Feng-Yu Wang, Some inequalities on Riemannian manifolds linking Entropy, Fisher information, Stein discrepancy and Wasserstein distance. *Journal of Functional Analysis* **285** (2023), no. 5, 109997, 35 pp.

[66] Jun Cao, Li-Juan Cheng and Anton Thalmaier, Hessian heat kernel estimates and Calderón-Zygmund inequalities on complete Riemannian manifolds. arXiv:2108.13058 (2023) 35 pp.

[67] Li-Juan Cheng, Anton Thalmaier and Feng-Yu Wang, Covariant Riesz transform on differential forms for $1 < p \leq 2$. *Calc. Var. Partial Differential Equations* **62** (2023), no. 9, Art. 245.

[68] Li-Juan Cheng and Anton Thalmaier, Hessian estimates for Dirichlet and Neumann eigenfunctions of Laplacian. *Int. Math. Res. Not. IMRN* **2024** (2024), no. 21, 13563–13585.

[69] Fabrice Baudoin, Erlend Grong, Robert Neel and Anton Thalmaier, Variations of the sub-Riemannian distance on Sasakian manifolds with applications to coupling. arXiv:2212.07715 (2023), 15 pp.

[70] Li-Juan Cheng, Anton Thalmaier and Feng-Yu Wang, Second Order Bismut formulae and applications to Neumann semigroups on manifolds. *Pure and Applied Functional Analysis*, **11** (2026), no. 3, 549–592.

[71] Li-Juan Cheng, Anton Thalmaier and Feng-Yu Wang, L^p-Boundedness of the covariant Riesz transform on differential forms for $p > 2$, arXiv: 2511.10922 (2025), 25 pp.