

# List of publications

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## MONOGRAPHS:

1. **Kounchev, Ognyan**, Multivariate polysplines: applications to numerical and wavelet analysis., Academic Press, Inc., San Diego, CA, 2001.
2. **In preparation**: O. Kounchev, H. Render, Multivariate Moment Problem, Orthogonality, and Cubature, for Springer Verlag.
3. **Editorship**: Andreas Vogel, Abu K. M. Sarwar, Rudolf Gorenflo, Ognyan I. Kounchev (editors): Theory and Practice of Geophysical Data Inversion. Proceedings of the 8th International Mathematical Geophysics Seminar on Model Optimization in Exploration Geophysics 1990. Verlag Friedr. Vieweg & Sohn, Braunschweig/Wiesbaden, 1992.
4. **Editorship**: Kounchev, O., et al. Proc. Conference NATO ARW "Science for security", Velingrad, Bulgaria, 2006, IOS Press, Amsterdam.

## PAPERS in Journals and Proceedings volumes:

1. **O. Kounchev**, H. Render, A moment problem for pseudo-positive definite functionals, **to appear in** *Arkiv foer Matematik*,  
<http://www.springerlink.com/content/120100/?Content+Status=Accepted>
2. Aldaz, J., **Kounchev, O.**, Render, H., Shape preserving properties of generalized Bernstein operators on Extended Chebyshev spaces, *Numerische Mathematik*, DOI: **10.1007/s00211-009-0248-0**
3. **O. Kounchev**, H. Render, On the Bernstein Operator of S. Morigi and M. Neamtu, *Results in Mathematics*, Volume 53, Numbers 3-4 / July, 2009.
4. **O. Kounchev**, **H. Render**, Bernstein operators for exponential polynomials, *Constructive Approximation*, Volume 29, Issue3 (2009), pp. 345 – 367.
5. **O. Kounchev**, **H. Render**, Pade approximation for a multivariate Markov transform, *Journal of Computational and Applied Mathematics*, Volume 219, Issue 2, 1 October 2008, pp. 416–430; at doi:**10.1016/j.cam.2007.05.004**

6. **O. Kounchev, H. Render:** Holomorphic Continuation via Laplace-Fourier series, In: **Complex Analysis and Dynamical Systems** (v. 3), pp. 197 – 205. Contemp. Math. 455, Amer. Math. Soc., Providence RI, 2008.
7. **O. Kounchev, H. Render,** Convergence of polyharmonic splines on semi-regular grids  $\mathbb{Z} \times a\mathbb{Z}^n$  for  $a \rightarrow 0$ . *Numer. Algorithms* 44 (2007), no. 3, pp. 255 – 272.
8. **A. Bejancu, O. Kounchev, H. Render,** Cardinal interpolation with periodic polysplines on strips. *Calcolo* 44 (2007), no. 4, 203–217.
9. **O. Kounchev, H. Render:** Polyharmonicity and algebraic support of measures, *Hiroshima Mathematical Journal*, vol. 37, no. 1 (2007), 25–44.
10. **W. Haußmann, O. Kounchev,** On polyharmonic interpolation, *Journal of Mathematical Analysis and Applications*, vol. 331, issue 2 (2007), 840-849.
11. **J. Aldaz, O. Kounchev, H. Render,** On real-analytic recurrence relations for cardinal exponential  $B$ -splines, *Journal of Approximation Theory*, vol. 145, issue 2, (2007), 253-265.
12. **O. Kounchev, H. Render,** On a New Method for Geometric Modelling and for Control of Exponential Processes, In: Ed. Kounchev et al. **Proc. Conference NATO ARW "Science for security", Velingrad, Bulgaria,** 2006, IOS Press, Amsterdam.
13. **O. Kounchev, H. Render, K. Gunnerov,** Applications of Approximation Theory to Forecasting of Global Systems Dynamics, in: Ed. Kounchev et al. **Proc. Conference NATO ARW "Science for security", Velingrad, Bulgaria,** 2006, IOS Press, Amsterdam.
14. **O. Kounchev, H. Render,** Polyharmonic splines on grids  $\mathbb{Z} \times a\mathbb{Z}^n$  and their limits, *Mathematics of Computations*, 74 (2005), 1831 – 1841.
15. **D. Kalaglarski, O. Kounchev,** Compression of astronomical images by means of polyspline wavelets, In: **Proceedings of the Conference of the Virtual Observatory, April 27 – 30, 2005,** Heron Press, Sofia, 2006.
16. **O. Kounchev, H. Render:** Reconsideration of the multivariate moment problem and a new method for approximating multivariate integrals, published online in the *electronic arXiv:math/0509380*, 2005.
17. **O. Kounchev, H. Render,** Cardinal interpolation with polysplines on annuli, *Journal of Approximation Theory*, 137 (2005), pp. 89 – 107.
18. **O. Kounchev, H. Render,** The approximation order of polysplines. *Proc. Amer. Math. Soc.* 132 (2004), no. 2, pp. 455-461.

19. **O. Kounchev and H. Render**, Pseudopositive multivariate moment problem. *C. R. Acad. Bulgare Sci.* 58 (2005), no. 11, 1243-1246.
20. **O. Kounchev and H. Render**, New PDE method for approximating multivariate integrals. *C. R. Acad. Bulgare Sci.* 58 (2005), no. 12, 1373 – 1378.
21. **O. Kounchev and H. Render**, On a new multivariate sampling paradigm and a polyspline Shannon function, available online at electronic ARXIV, <http://arxiv.org/abs/0809.5153>
22. **Alexiev, Kiril, Kounchev, Ognyan, Render, Hermann**, Stable recurrence relations for a class of L-splines and for polysplines, Geometric modeling and computing: Seattle 2003, pp. 1-12, Mod. Methods Math., Nashboro Press, Brentwood, TN, 2004.
23. **Bejancu, Aurelian, Kounchev, Ognyan, Render, Hermann**, Cardinal interpolation with biharmonic polysplines on strips, Curve and surface fitting (Saint-Malo, 2002), pp. 41-58, Mod. Methods Math., Nashboro Press, Brentwood, TN, 2003.
24. **Kounchev, Ognyan, Render, Hermann**, Wavelet analysis of cardinal L-splines and construction of multivariate prewavelets., Approximation theory, X (St. Louis, MO, 2001), pp. 333–353, Innov. Appl. Math., Vanderbilt Univ. Press, Nashville, TN, 2002.
25. **Kounchev, Ognyan, Render, Hermann**, Symmetry properties of cardinal interpolation L-splines and polysplines. Trends in approximation theory (Nashville, TN, 2000), pp. 191-202, Innov. Appl. Math., Vanderbilt Univ. Press, Nashville, TN, 2001.
26. **Dryanov, Dimiter, Kounchev, Ognyan**, Multivariate Bernoulli functions and polyharmonically exact cubature formula of Euler-Maclaurin. *Math. Nachr.* 226 (2001), pp. 65-83.
27. **Haußmann, Werner, Kounchev, Ognyan**, Peano kernel associated with the polyharmonic mean value property in the annulus., *Numer. Funct. Anal. Optim.* 21 (2000), no. 5-6, pp. 683-692.
28. **Haußmann, Werner, Kounchev, Ognyan**, Definiteness of the Peano kernel associated with the polyharmonic mean value property. *J. London Math. Soc.* (2) 62 (2000), no. 1, pp. 149–160.
29. **Dryanov, Dimiter, Kounchev, Ognyan**, Polyharmonically exact formula of Euler-Maclaurin, multivariate Bernoulli functions, and Poisson type formula., *C. R. Acad. Sci. Paris S'er. I Math.* 327 (1998), no. 5, pp. 515–520.

30. Haußmann, Werner, **Kounchev, Ognyan**, Variational property of the Peano kernel for harmonicity differences of order  $p$ ., Clifford algebras and their application in mathematical physics (Aachen, 1996), pp. 185-199, *Fund. Theories Phys.*, 94, Kluwer Acad. Publ., Dordrecht, 1998.
31. **Kounchev, Ognyan**, Minimizing the Laplacian of a function squared with prescribed values on interior boundaries theory of polysplines, *Trans. Amer. Math. Soc.* 350 (1998), no. 5, pp. 2105-2128.
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33. Haußmann, Werner, **Kounchev, Ognyan**, Peano theorem for linear functionals vanishing on polyharmonic functions. Approximation theory VIII, Vol. 1 (College Station, TX, 1995), pp. 233-240, Ser. Approx. Decompos., 6, World Sci. Publ., River Edge, NJ, 1995.
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35. **Kounchev, Ognyan**, Splines constructed by pieces of polyharmonic functions. Eds. P. Laurent et al., Wavelets, images, and surface fitting (Chamonix-Mont-Blanc, 1993), pp. 319-326, A K Peters, Wellesley, MA, 1994.
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39. **Kounchev, O.**, On the approximation through polyharmonic operators, In: Approximation Theory, Ed. G. Anastassiou, Lecture notes in pure and applied mathematics, No. 138, M. Dekker, 1991, pp. 377-384.
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