flatness). The second question is when the Poisson kernel exists and has VMO logarithm (VMO means the well known space of functions with vanishing mean oscillation). The answer is in terms of the flatness and asymptotic behaviour of the surface (perimeter) measure and the condition is called the vanishing chord arc. All main results are in general dimension. The presentation is mostly developed in two stages, first the scheme of the proof is outlined and then the exposition proceeds to complete details. This helps in understanding the idea of the proof. The results mentioned above mainly occur as natural end points of previously known results of Kellogg, Alt, Caffarelli, Dahlberg, Jerison, Kenig and others. These results, as well as two-dimensional results, are presented in the form of a survey. Some background is included to make the exposition more self-contained and accessible. (jama)

F.-X. Dehon: Cobordisme complexe des espaces profinis et foncteur T de Lannes*, Mémoires de la Société Mathématique de France, no. 98, Société Mathématique de France,, Paris, 2004, 138 pp., EUR 26, ISBN 2-85629-162-7*

This volume represents a continuation of the paper F.-X. Dehon, J. Lannes, Sur les espaces fonctionnels dont la source est le classifiant d'un groupe de Lie compact commutatif, Publ. Math. Inst. Hautes Études Sci. 89 (1999), 127–177, and also of the paper N. Kuhn, M. Winstead, On the torsion in the cohomology of certain mapping spaces, Topology 39 (1996), 875–881. Its aim is the following: let p be a prime, let π be a compact commutative Lie group, and let MU denote the spectrum representing the complex cobordism. We take a space X such that its cohomology with coefficients in the ring of p-adic integers has no torsion.

The authors consider the functional space consisting of continuous mappings whose source is the classifying space $B\pi$ of the group π and the target is the profinite p-completion of the space X. They prove that the continuous MU-cohomology completed at the prime p of this functional space can be identified with the image under a functor $TB\pi$ of the p-completed MU-cohomology of the target space. The functor $TB\pi$ is an analogy of the Lannes' functor T, where π is a cyclic group of order p. Let us mention that the authors work in the simplicial setting. This highly interesting text is intended primarily for specialists. In order to make the approach to the results easier, the authors attached an appendix with some explanations. (jiva)

J. J. Duistermaat, J. A. C. Kolk: Multidimensional Real Analysis*, 2 Volume Hardback Set, Cambridge Studies in Advanced Mathematics 86, 87, Cambridge University Press, Cambridge, 2004, 798 pp., GBP 75, ISBN 0-521-82930-5*

This two-volume set is devoted to a quite well known and many times presented topic – differential and integral calculus for functions of several real variables. There are a considerable number of textbooks explaining this subject at various levels of mathematical rigour. Nevertheless, these books bring a new and fresh point of view to an old theme. The first important feature is that these books do not follow the usual strict division into analysis, geometry and algebra; they combine ideas from these different branches (together with those coming from mathematical physics, Lie groups theory, number theory, probability, and special functions) whenever it is suitable. Another unusual feature is that half of the content is constructed of exercises (altogether more than 550) ranging from standard ones to those indicating relations to other fields of mathematics and to challenging ones (useful for accompanying seminars). A logical dependence inside the set of exercises is carefully indicated. It is assumed that the reader has a good understanding of differential and integral calculus with one real variable, otherwise everything is fully proved. The book offers a nice solution to the usual problem of how to present vector calculus and the Stokes type theorem in a basic course of analysis.

The first book is devoted to differential calculus in several variables. The first chapter studies topology of R^n and continuous maps between Euclidean spaces (distance, open, connected and compact sets, and continuous maps). The topics treated in the second chapter are differentiable maps between Euclidean spaces (approximation by linear maps, partial derivatives, critical points, the Taylor formula, and commutativity of a limit process with differentiation and integration). The inverse function theorem and the implicit function theorem are the main tools for a description of local behavior of differentiable maps, which are studied in chapter 3. All that having been covered, smooth submanifolds in R^n are defined in chapter 4 (the Morse lemma and a discussion of critical points of functions is included here) and their tangent spaces are studied in chapter 5 (including a study of curves in R^3, Gaussian curvature of a surface and Lie algebras of linear Lie groups).

The second book is devoted to integral calculus in R^n. It starts with Riemann integration in R^n (Fubini's theorem and change of variables, with several proofs) and continues with applications involving the Fourier transform and the basic limit theorems in integral calculus. Chapter 7 contains the theory of integration with respect to a density over a submanifold in R^n, the main point being the Gauss divergence theorem. The last chapter is devoted to differential forms and a general form of the Stokes theorem. As a whole, the monograph is an excellent addition to the existing literature. Its most valuable feature is that it preserves (and presents) natural relations to many other fields of mathematics, which are cut off in standard treatments. The carefully worked out and comprehensive set of exercises will be very useful for teachers in their lectures and seminars. These books can be very much recommended to any teacher of real analysis as well as to a general mathematical audience. (vs)

V. Ya. Eiderman, M. V. Samokhin, Eds.: Selected Topics in Complex Analysis – The S. Ya. Khavinson Memorial Volume, *Operator Theory: Advances and Applications, vol. 158, Birkhäuser, Basel, 2005, 222 pp., EUR 108, ISBN 3-7643-7145-5*

This book is dedicated to the memory of S. Ya. Khavinson. The introductory note is written by V. P. Havin. It recalls the main results of S. Ya. Khavinson, in particular results in linear programming and complex analysis (Khavinson's approach to extremal problems), extremal problems with supplementary restrictions (a Tchebyshev-like phenomenon), spaces of analytic functions in multiply connected domains (zero logarithmic capacity of removable sets and factorization problems), analytic capacity (Khavinson's measure and Cauchy potentials) and approximation problems. A complete bibliography and several photos are included. Moreover, the book contains twelve research and expository papers covering the following topics: extremal problems, approximation problems, the Cauchy integral, analytic ca-