

Preface

Since the publication of my previous books [99, 106], many papers and monographs have appeared which develop similar themes. So, now is a good time for an “intermediate finish”, a new book containing results obtained up to the present.

The themes of the book cross the borders of several mathematical subjects including the geometry of manifolds, stochastic analysis, set-valued analysis and some chapters of mathematical physics. Thus, an important feature of the book is that it includes a significant amount of preliminary material. However, my original intention to make the book completely self-contained yielded such an incredible volume of text that I had to reduce the preliminaries and assume the reader to be at least a little familiar with the aforementioned branches of mathematics. Nevertheless, I hope that the remaining preliminaries will be useful for an expert in one of the subjects who wishes to understand the others and will also familiarize non-experts with the general themes of this work.

I want to express my thanks to a lot of people who aided me in my research. First of all, I am obliged to my advisor Yu.G. Borisovich who introduced me to mathematics. In particular, I owe my interest in Global Analysis and its applications to Mathematical Physics to him. Another strong influence (this time in Stochastic Analysis) was exerted on my research by K.D. Elworthy. I am indebted to him for long and extremely useful discussions of the problems that interested me, as well as for repeated invitations to Warwick University, allowing me to ventilate my ideas with many mathematicians from all over the world. In addition, I should specially mention Yu.L. Daletskiĭ who was also a great help.

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Yuri E. Gliklikh
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Gliklikh, Y.E.

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