systems by relating them to the theory of Lie groups, Lie algebras and symmetric spaces. A Lie group G acts on the dual g^* of its Lie algebra and every orbit in g^* has a canonical symplectic structure. It is conjectured in general and proved in many special cases that there are smooth functions $f_1, \ldots, f_k$ on g^* which restrict to a full commutative set of functions on generic orbits in g^*. Thus the Hamiltonian systems on the orbits defined by any of the functions f_i can be solved completely. In the last chapter of his book Fomenko shows how several differential systems arising from classical mechanics (such as the motion of a solid body in an ideal fluid) can be solved in this way by virtue of their equivalence to Hamiltonian systems on orbits in duals of Lie algebras.

Unfortunately this book suffers from having been poorly translated from Russian. Indeed a basic knowledge of the Russian language makes reading easier. In most cases the poor translation is merely a source of amusement or at worst irritation. However some errors are more serious, such as when the phrase "*must not be*" is used where "*is not necessarily*" is meant. These errors are likely to cause unnecessary confusion to those at whom the book is aimed, that is, graduate students and nonspecialists learning the subject for the first time.

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Pseudodifferential operators and spectral theory, by M. A. Shubin. Translated by Stig I. Andersson. Springer-Verlag, Berlin, Heidelberg, New York, 1987, x + 278 pp., $55.00. ISBN 3-540-13621-5

The publishers are to be commended for making this text by M. A. Shubin accessible to the mathematicians who do not read Russian. It contains a fairly short, yet highly readable account of pseudodifferential, and Fourier integral, operator theory, with extensive applications to the spectral theory of linear elliptic equations. Let me say right away that any mathematician tempted to give a first course in the subject of ΨDO and/or FIO should give serious consideration to Chapter I, plus Appendix I, of Shubin's book as a possible text. They present most of what is needed for a basic understanding of the theory in a style that is simple yet precise. They are independent of the other chapters, to which the reader might want to go for significant applications and extensions.

There is nothing novel in the application of pseudodifferential operators to elliptic problems. Elliptic problems are one of the main sources from which the