manifolds. Another type of generalization, partly due to Kawai, Kashiwara, Sato and partly due to Hörmander, involves the notion of the "wave front set" of a distribution as a kind of substitute for the holonomic systems mentioned above. For instance, Hörmander shows that if $f\colon X \to Y$ is a smooth map and φ is a generalized function on Y then $f^*\varphi$ can be defined in a legitimate way if f is transversal to the wave front set of φ. More generally he shows that both the pull-back and push-forward operations behave well with respect to maps which are well-situated (transversal) with respect to the wave-front sets of the distributions to which these operations are applied. Moreover, the "Fourier integral distributions" which have come to play such a central role in the theory of hyperbolic differential equations lately, turn out to be *exactly those distributions which can be generated from the distributions* $(x + 0i)^\lambda$ *on the real line by pull-back and push-forward operations satisfying these transversality conditions.*

There are a number of topics in volumes 1 and 5 of *Generalized functions* which seem capable of further exploitation. For instance in spite of the impetus given to the field of integral geometry by the work of Gelfand-Graev-Vikenkin on the Plancherel formula for $SL(2, \mathbf{C})$ we still know embarrassingly little about these questions. In volume 5, Gelfand et al give necessary and sufficient conditions for a line complex in CP^3 to be "admissible", i.e. to have the property that the integrals of a function on CP^3 over the lines of the complex determine it unequivically. Later Gelfand and Graev extended this result to CP^n; however we still do not know much about the admissibility of complexes of planes, three-folds etc.

Another topic which deserves further investigation is the question of what class of distributions one gets if, starting with the elementary distributions, $z^\mu \bar{z}^\nu$, on the complex line, one tries to generate new distributions by successive "pull-backs" and "push-forwards". (For the beginnings of a theory, see appendix B of volume 1.)

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Schwartz spaces, nuclear spaces and tensor products, by Yau-Chuen Wong, Lecture Notes in Math., vol 726, Springer-Verlag, Berlin-Heidelberg-New York, 1979, viii + 418 pp., $19.50.

During a conversation in 1966, G. Köthe said to me, "The best book about the general theory of nuclear spaces and tensor products in existence today is the book of A. Pietsch [16]". Perhaps the kindest thing to be said about the present book is that Köthe's statement is still true. In fact, although he tries to hide it with new names such as "prenuclear norm", most of Wong's book could have been written at the time of that conversation. He doesn't write very much about what has happened in the ensuing 14 years.

It is common knowledge that the origin of the theory of nuclear spaces (and tensor products, too–there is little to be said about Schwartz Spaces these days) lies in the thesis of A. Grothendieck [10]. I'll indicate some