are quasilinear hyperbolic systems. There L^2-type estimates have to be used, making the assumptions less natural and general than for nonlinear elliptic equations in the Hölder space setting. A confrontation of these two cases would have been very enlightening for the student.

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K-theory of forms, by Anthony Bak, Annals of Mathematics Studies, vol. no. 98, Princeton Univ. Press, Princeton, N. J., 1981, viii + 268, Cloth $20.00, paperback $8.50.

The study of quadratic forms over general rings is a recent phenomenon. Until the mid 1960s only quadratic forms over rings of arithmetic type were considered, and the subject was a branch of number theory. All this changed with the development of algebraic K-theory and its application to the topology of manifolds at the hands of the surgery obstruction theory of Wall [**5**]. The surgery obstruction groups $L_*(\pi) = L_*(\mathbf{Z}[\pi])$ consist of stable isomorphism classes of quadratic forms over the integral group ring $\mathbf{Z}[\pi]$ of a group π, and also of the stable unitary groups of automorphisms of such forms. For finite π the computation of $L_*(\pi)$ is just about possible, and Bak has been one of the leading researchers in the field. The computations of all authors are based on the localization-completion "arithmetic square" of a finite group ring $\mathbf{Z}[\pi]$

$$\begin{array}{ccc} \mathbf{Z}[\pi] & \rightarrow & \mathbf{Q}[\pi] \\ \downarrow & & \downarrow \\ \hat{\mathbf{Z}}[\pi] & \rightarrow & \hat{\mathbf{Q}}[\pi] \end{array}$$

in which the other rings are quite close to being of arithmetic type, and for which there is an algebraic Mayer-Vietoris sequence in the L-groups of the type

$$\cdots \rightarrow L_n(\mathbf{Z}[\pi]) \rightarrow L_n(\mathbf{Q}[\pi]) \oplus L_n(\hat{\mathbf{Z}}[\pi]) \rightarrow L_n(\hat{\mathbf{Q}}[\pi]) \rightarrow L_{n-1}(\mathbf{Z}[\pi]) \rightarrow \cdots$$

generalizing the classical Hasse-Minkowski local to global principle in the unstable classification of quadratic forms over global fields.

The book under consideration is a collection of all the definitions and general theorems in the algebraic K-theory of forms which are required for the author's computations, and as such it is very welcome. Unfortunately, I doubt if the reader who is not interested in the background of Bak's computations will get much out of this book. So many different types of unitary K-groups are defined (the index lists 40) that it is practically impossible to keep track of them, especially as there are no examples given of any kind to show that they are distinct and nonzero. The absence of feeling for the history of the subject also makes the book hard to read. For example, it would help if the motivation in §1.D for the introduction of "form parameters" not only mentioned the