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ON CONJUGATION COBORDISM

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An almost-complex manifold supports an involution if there is a differentiable self-map on the manifold of period two. The differential of the map acts on the coset space of the almost-complex structures on M by inner automorphism. This action is also of period two. If the almost-complex structure is sent to its conjugate, the manifold with structure, together with the given involution is called a conjugation. Any linear involution of Euclidean space may be used to stabilize this situation, giving a cobordism theory of exotic conjugations. The question considered here is: What is the image in complex cobordism of the functor which forgets equivariance. The result shown in the next section is: If a stably almost-complex manifold supports an exotic conjugation, every characteristic number is even.

The first cobordism results on conjugations are due to Conner and Floyd [3] (§ 24). In [4], Landweber established the equivariant analogues of the Thom theorems. Certain examples have been considered by Landweber, [5] (§ 3), and together with the result here the image of the forgetful functor can be seen to be maximal, in some cases.

2. *Proof of the theorem.* It is well-known from the work of Thom and Milnor that the unoriented bordism ring $\mathscr{N}_*$, with spectrum $\boldsymbol{MO}$, is a polynomial ring over $\boldsymbol{Z}_2$ on manifold classes n_t, $t+1$ any positive integer not a power of two (t nondyadic). Also $\mathscr{U}_*$, the complex bordism ring with spectrum $\boldsymbol{MU}$, is a polynomial ring over $\boldsymbol{Z}$ on manifold classes u_t, $t = 0, 1, \cdots$. Representatives for the dyadic generators u_t, $t + 1 = 2^j$, may be chosen so that every normal characteristic number is even. The principal ideal in $\mathscr{U}_*$ generated by dyadic generators is the graded Milnor ideal associated to 2, I. $I_{2k} = I \cap \mathscr{U}_{2k}$.

If a partition of k contains a dyadic integer the partition will be called dyadic. Let $d(k)$ denote the dyadic partitions of k, $n(k)$ the nondyadic partitions of k. If $\alpha = a_1 a_2 \cdots a_r$ is a partition of k then the group generator $u_{a_1} \cdots u_{a_r} \in \mathscr{U}_{2k}$ will be denoted u_α. Similarly for $n_\alpha \in \mathscr{N}_k$.

If $MU(n)$ is given the involution defined in [4] then it is a G-complex, $G = \boldsymbol{Z}_2$, in the sense of Bredon. Note that $\tilde{\omega}_0(MU(n)) = \tilde{\omega}_1(MU(n)) = 0$. The construction given in the next section produces, for each partition of k, α, and sufficiently large n, an equivariant