

1020-94-31 **Neil J.A. Sloane*** (njas@research.att.com), AT&T Shannon Labs, Room C233, 180 Park Ave, Florham Park, NJ 07932-0971. *Gleason's Theorem on Self-Dual Codes and Its Generalizations*. Preliminary report.

One of the most remarkable theorems in coding theory is Gleason's 1970 theorem about the weight enumerators of self-dual codes. In the past 36 years there have been hundreds of papers written about generalizations and applications of this theorem to different types of codes, always on a case-by-case basis. In this talk I will state the theorem and then describe the far-reaching generalization that Gabriele Nebe, Eric Rains and I have developed which includes all the earlier generalizations at once. The full proof has just appeared in our book "Self-Dual Codes and Invariant Theory" (Springer, 2006). (Received July 24, 2006)