1014-22-584 **Hanspeter Kraft** and **Gerald Schwarz*** (`schwarz@brandeis.edu`), Department of Mathematics, Mail Stop 050, PO Box 549110, Waltham, MA 02454. *Covariant dimension of finite groups.* Preliminary report.

Our base field is $\mathbb{C}$. Let G be a finite group. If V and W are finite dimensional G-modules, then a G-equivariant mapping $\varphi\colon V \to W$ is called a covariant. We say that φ is faithful if G acts faithfully on φ(V) and we define the dimension of φ to be the dimension of $\varphi(V)$. Following Z. Reichstein, we define the covariant dimension covdim G of G to be the minimum over all V, W and faithful φ of $\dim\varphi$. The notion of covariant dimension is closely related to the notion of essential dimension of Buhler and Reichstein. We show that the covariant dimension of a finite abelian group is its rank, and we obtain upper and lower bounds for the covariant dimension of the symmetric groups. We are able to classify groups with low covariant dimension. In many situations we are able to show that covdim $G = \dim\varphi$ where φ is a homogeneous faithful covariant.