

**Miroslav Rozložník**

**Institute of Mathematics of the Czech Academy of Sciences**

**Gram-Schmidt in presence of rounding errors**

**Abstract**

In this contribution we study the classical Gram-Schmidt process, the most widely known representative of a broad class of orthogonalization techniques and strategies. We consider the orthogonalization of vectors with respect to the standard inner product, non-standard inner product and indefinite bilinear form. We focus on the numerical behavior of such schemes, in particular, we study the loss of orthogonality between the vectors computed in finite precision arithmetic. We show that their orthogonality can be significantly improved by one step of reorthogonalization.