

Isometries of Grassmann spaces

Peter Šemrl, University of Ljubljana

Let H be a (real or complex) Hilbert space and n a positive integer. We denote by $P_n(H)$ the set of all rank n projections on H . In the case when H is an infinite-dimensional separable Hilbert space, the symbol $P_\infty(H)$ stands for the set of all projections whose images and kernels are both infinite-dimensional. By $\|\cdot\|$ we denote the usual operator norm on $B(H)$, the set of all bounded linear operators on H . The distance on the set of all projections induced by the operator norm is usually called the gap metric. The structural results for surjective isometries of $P_n(H)$, $n = 1, 2, 3, \dots$, and $P_\infty(H)$ with respect to the gap metric will be presented.