

## LINEAR PSEUDO ADJOINT OF A PSEUDO INNER PRODUCT SPACE

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In this paper we have carried out the continuation of our study about the pseudo inner product spaces. We define for any pseudo inner product space the concept of pseudo subspace. We also define for any non empty subset  $S$  of  $V$ , the pseudo orthogonal complement of  $S$ .

The notion of pseudo adjoint of a linear operator of a pseudo inner product space is defined and analyzed. We also define concepts like pseudo self adjoint, pseudo unitary and pseudo normal operators on  $V$ . the following main results are proved. Let  $V$  be a pseudo inner product space over a finite prime field of characteristic  $p$ .  $W$  be a subspace of  $V$ . Then in general  $W$  and its orthogonal complement can have a nonempty intersection.

Let  $V$  be a pseudo inner product space over any finite field. Let  $W$  be a proper subspace of  $V$ , then in general  $V$  is not a direct sum of  $W$  and its orthogonal complement. This paper has several examples.