

# ON THE STRUCTURE OF $\mathcal{P}_w({}^n E, F)$ AS A SUBSPACE OF $\mathcal{P}({}^n E, F)$

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ABSTRACT. The space  $\mathcal{P}({}^n E, F)$  of continuous  $n$ -homogeneous polynomials between Banach spaces  $E$  and  $F$  has a distinguished subspace:  $\mathcal{P}_w({}^n E, F)$  that consists of those polynomials which are weakly continuous on bounded sets. In this talk we discuss the problem of when this special subspace is an  $M$ -ideal in its ambient space. We present some consequences of this fact and provide a number of examples. We also consider some weaker structures like to be an  $HB$ -subspace or an  $M(1, C)$ -ideal.

Part of this talk comes from joint work with Silvia Lassalle and Angelines Prieto.