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**Maps to the projective plane**

*Abstract.* We prove the projective plane is an absolute extensor of a finite-dimensional metrizable space  $X$  if and only if the cohomological dimension mod 2 of  $X$  does not exceed 1. This solves one of the remaining difficult problems (posed by A.N.Dranishnikov) in extension theory. One of the main tools is the computation of the fundamental group of the function space  $\text{Map}(RP^n, RP^{n+1})$  (based at the inclusion) as being isomorphic to either  $\mathbb{Z}_4$  or  $\mathbb{Z}_2 \oplus \mathbb{Z}_2$  for  $n \geq 1$ . Double surgery and the above fact yield the proof.

(This is joint work with Michael Levin.)