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Tommaso de Fernex* (defernex@math.utah.edu), University of Utah, Department of Mathematics, 155 South 1400 East, Salt Lake City, UT 84112. *Recent applications of multiplier ideals and arc spaces to the rationality problem.*

I will report on a recent result, stating that for $N \geq 4$, all smooth hypersurfaces of degree N in \mathbb{P}^N are nonrational in a very strong sense, namely, are birationally superrigid, the case $N = 4$ of this result being the celebrated theorem of Iskovskikh and Manin. This result was conjectured by Pukhlikov. The proof is based on suitable restriction properties of multiplier ideals, obtained using the interpretation of these ideals in terms of the geometry of arc spaces. (Received August 29, 2006)