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Catanese, Fabrizio, G. A. Universität Göttingen

Bidouble covers and surface geography

A bidouble cover is an Abelian cover X - Y of degree four with group $(Z/2)^2$. Examples where X is smooth and Y is a smooth quadric lead in the 80's to interesting insight into the moduli spaces of surfaces of general type , and to still open problems concerning their differentiable structures. Allowing the 3 branch divisors to meet, P. Burniat was able in the 60's to construct some interesting surfaces of general type. One can also allow singularities , and build a general theory by which one can construct canonical surfaces into new areas of surface geography.