

Diagonal double Kodaira fibrations with minimal signature

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We study some special systems of generators on finite groups, introduced in previous work by the first author and called *diagonal double Kodaira structures*, in order to investigate non-abelian, finite quotients of the pure braid group on two strands $P_2(\Sigma_b)$, where Σ_b is a closed Riemann surface of genus b . In particular, we prove that, if G admits a diagonal double Kodaira structure, then $|G| \geq 32$, and equality holds if and only if G is extra-special. In the last part, as a geometrical application of our algebraic results, we construct two 3-dimensional families of double Kodaira fibrations having signature 16.

This is joint work with P. Sabatino