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CYCLIC COVERINGS OF RATIONAL NORMAL SURFACES WHICH ARE QUOTIENTS OF A PRODUCT OF CURVES

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Abstract: This paper deals with cyclic covers of a large family of rational normal surfaces that can also be described as quotients of a product, where the factors are cyclic covers of algebraic curves. We use a generalization of the Esnault–Viehweg method to show that the action of the monodromy on the first Betti group of the covering (and its Hodge structure) splits as a direct sum of the same data for some specific cyclic covers over $\mathbb{P}^1$.

This has applications to the study of Lê–Yomdin surface singularities, in particular to the action of the monodromy on the mixed Hodge structure, as well as to isotrivial fibered surfaces.

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Key words: normal surfaces, cyclic coverings, Alexander polynomial, monodromy, isotrivial fibered surfaces, Lê–Yomdin singularities.