

## MILNOR FIBERS ASSOCIATED TO QUASI-ORDINARY SURFACES

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Here is the local picture of a quasi-ordinary surface: a germ of surface in  $\mathbf{C}^3$ , arranged so that projection to the  $x$ - $y$  plane is ramified only over the axes. It's "a surface that behaves like a curve." Conjectures about arbitrary surfaces ought to be especially simple to investigate for this class of surfaces. I will describe ongoing investigations of the local topology of quasi-ordinary surfaces, in joint work with M. Caibăr, M. González Villa, and L. McEwan. To begin, I will describe completed work with McEwan, in which we studied the Milnor fiber of a cross-section  $x = C$  (small nonzero constant). This is naturally a member of two fibrations: the well-known Milnor fibration, also called the horizontal fibration, and the vertical fibration obtained by letting  $C$  move on a circle. We found recursive methods for calculating both monodromies. One can hope to investigate more deeply by finding motivic versions of these fibrations, following the lead of Denef, Loeser, et al., and by proving analogous recursions, which should lead to new information about the Hodge-theoretic spectrum.