THE VANISHING CYCLES
OF
TYPES $A_{\frac{1}{2}\infty}$ AND $D_{\frac{1}{2}\infty}$

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ABSTRACT. We introduce two real entire functions $f_{A_{\frac{1}{2}\infty}}$ and $f_{D_{\frac{1}{2}\infty}}$ in two variables, having only two critical values 0 and 1. Associated maps $\mathbf{C}^2 \to \mathbf{C}$ define topologically locally trivial fibrations over $\mathbf{C}\backslash\{0,1\}$. The critical points over 0 and 1 are ordinary double points, whose associated vanishing cycles in the generic fiber span its middle homology group and their intersection diagram forms the bi-partite decomposition of quivers of type $A_{\frac{1}{2}\infty}$ and $D_{\frac{1}{2}\infty}$, respectively. Coxeter element of type $A_{\frac{1}{2}\infty}$ and $D_{\frac{1}{2}\infty}$ are introduced as the product of the monodromies of the fibrations around 0 and 1. We describe the spectra of the intersection form (normalized in the iterval $[0,4]$) and the Coxeter elements (normalized in the interval $(-\frac{1}{2},\frac{1}{2})$).

The present note is taken from the abstract of a preprint of the author: RIMS-1710 (Jan. 2011), Coxeter elements for vanishing cycles of types $A_{\frac{1}{2}\infty}$ and $D_{\frac{1}{2}\infty}$, which is going to appear elesewhere.