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Abstracts of Short Communications and Posters

Section:

6. Topology

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The surgery formula for the discrete Godbillon-Vey invariant
Ghys and Sergiescu define the discrete Godbillon-Vey class $GSGV$ in $H^2(PL^+(S^1);\mathbf{R})$ where $PL^+(S^1)$ is the group of orientation preserving piecewise linear(=PL) homeomorphisms of the circle. We can generalize $GSGV$ to an invariant of codimension one transversely PL foliations in oriented closed 3-dimensional manifolds. These foliations are deformed by the surgery along a simple closed curve with a holonomy in a leaf. This surgery is topologically a Dehn surgery.
Theorem. Let $\mathcal{F}$ be a codimension one transversely PL foliation and C, a simple closed curve in a leaf whose holonomy is linear, $x \mapsto \lambda x$ $(\lambda > 0)$. If $\mathcal{F}'$ is made from $\mathcal{F}$ by the surgery along C, then

$$GSGV(\mathcal{F}') = GSGV(\mathcal{F}) - (\log \lambda)^2.$$