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ADDENDUM TO FIBERED 2-KNOTS AND LENS SPACES

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There are some obscure points in the proof of Lemma 1. We can consider that any M^0-fibered 2-knot K in $\sum$ is constructed from an M-fiber bundle over S^1 with suitable monodromy h, $V=M\underset{h}{\times}S^1$, by performing a surgery along a 2-handle attaching to a normal bundle of a section ζ, a simple closed curve intersecting each fiber in a single point. That is, $\sum=V-\zeta\times\mathrm{Int}\,D^3\cup D^2\times S^2$ and $K=\{0\}\times S^2\subset D^2\times S^2$. Then we must show that the pair $(\sum, K)$ is independent of the choice of sections and framings of the normal bundles. Since M admits a circle action with fixed point set, the framing is irrelevant [1], [2]. Let $\pi_1(M, x)=\langle\alpha\,|\,\alpha^p=1\rangle$. Then $\pi_1(V, x\times\{1\})=\langle\alpha, t\,|\,\alpha^p=1,\ t\ \alpha\ t^{-1}=\alpha^{-1}\rangle$, since h is diffeotopic to A on M. It is easy to verify that $\alpha^i\ t$ is conjugate to t for any integer i. Hence any two sections are freely-homotopic each other, and so isotopic, since dim $V=4$. By the Isotopy Extension Theorem, this isotopy is realized by an ambient isotopy of V. Therefore the surgered manifold pair is independent of the choice of sections.

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References

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