AUTOMORPHISMS OF SURFACES AND SEIFERT FIBERED SURGERIES ON FIBERED KNOTS

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It is known that there are infinitely many hyperbolic, fibered knots in S^3 each of which admits a longitudinal, toroidal surgery. However there is no known example of a hyperbolic, fibered knot in S^3 yielding Seifert fiber space by longitudinal surgery. In fact, Teragaito conjectures that there are no such examples. We show that such phenomena can happen for knots in some homology 3-spheres. The construction leads us a question about an existence of a hyperbolic section in a Seifert fibered, surface bundle over the circle. We give a condition assuring that the given section is hyperbolic in terms of the "projection" in the fiber surface.

We also discuss how to find hyperbolic sections in a surface bundle over the circle in general settings. By translating the result, we give conditions how to obtain pseudo-Anosov automorphisms of once punctured surfaces.

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