On pseudo-fiber surfaces of level n

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Abstract. The concept of pre-fiber surface in the 3-sphere S^3 was introduced by Kobayashi in [Ko]. In the paper, it is shown that any pre-fiber surface is transformed into a fiber surface by twisting is along arcs with certain properties. In this talk, we introduce pseudo-fiber surfaces of level n for each non-negative integer n. (We note that a surface is a fiber surface if and only if it is a pseudo-fiber surface of level 0, and it is a pre-fiber surface if and only if it is a pseudo-fiber surface of level 1.) We show some fundamental properties of pseudo-fiber surfaces. Then we show that if an arc proper embedded in a pseudo-fiber surface of level n satisfies certain properties, then the twist along the arc transforms it into a pseudo-fiber surface of level n-1. This gives a natural generalization of a result of Kobayashi's. Finally we propose an application of pseudo-fiber surface for giving an estimation of unknotting numbers of fibered knots.