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Constructing a broken Lefschetz fibration of S^4 with a spun or twist-spun torus knot fiber

Ka Lun Choi

(Submitted on 9 Jul 2011 (v1), last revised 21 Oct 2011 (this version, v2))

Much work has been done on the existence and uniqueness of broken Lefschetz fibrations such as those by Auroux et al., Gay and Kirby, Lekili, Akbulut and Karakurt, Baykur, and Williams, but there has been a lack of explicit examples. A theorem of Gay and Kirby suggests the existence of a broken Lefschetz fibration of S^4 over S^2 with a 2-knot fiber. In the case of a spun or twist-spun torus knot, we present a procedure to construct such fibrations explicitly. The fibrations constructed have no cusps nor Lefschetz singularities.

Comments:	28 pages, 21 figures
Subjects:	**Algebraic Topology (math.AT)**; Geometric Topology (math.GT)
Cite as:	**arXiv:1107.1822** **[math.AT]**
	(or **arXiv:1107.1822v2** **[math.AT]** for this version)

Submission history

From: Ka Choi [view email]

[v1] Sat, 9 Jul 2011 22:34:18 GMT (279kb,D)
[v2] Fri, 21 Oct 2011 23:47:03 GMT (274kb,D)

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