# A Family of Singly Periodic Minimal Surfaces Invariant under a Screw Motion

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**Abstract**

We construct explicitly, using the generalized Weierstrass representation, a complete embedded minimal surface $M_{k,\theta}$ invariant under a rotation of order $k+1$ and a screw motion of angle $2\theta$ about the same axis, where $k > 0$ is any integer and $\theta$ is any angle with $|\theta| < \pi/(k+1)$. The existence of such surfaces was proved in [Callahan et al. 1990], but no practical procedure for constructing them was given there.

We also show that the same problem for $\theta = \pm\pi/(k+1)$ does not have a solution enjoying reflective symmetry; the question of the existence of a solution without such symmetry is left open.