# Laplace-Beltrami Operator of *(m,n)*-Type Helicoidal Surfaces

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**Abstract.** We define a new family of helicoidal surfaces $\mathbf{H}_{m,n}$ in three dimensional Euclidean space, one for each pair of natural numbers $(m, n)$. We also define a corresponding rotation surface $\mathbf{R}_{m,n}$ which we prove is isometric to each helicoidal surface. We compute the first and second fundamental forms for both families and, in addition, we calculate the Laplace-Beltrami operator of the rotational surface with parameters $(0, 1)$.

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