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	authors	• Benoit Daniel • William H. Meeks III • Harold Rosenberg	**authors**	• Benoit Daniel • William H. Meeks III • Harold Rosenberg	NOT DUPLICATES	1176
	title	Half-space theorems for minimal surfaces in Nil_3 and Sol_3	**title**	Half-space theorems and the embedded Calabi-Yau problem in Lie groups		
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	id	id7979731713237653352	**id**	id6394981640739225158		
	abstract	We prove some half-space theorems for minimal surfaces in the Heisenberg group Nil_3 and the Lie group Sol_3 endowed with their left-invariant Riemannian metrics. If S is a properly immersed minimal surface in Nil_3 that lies on one side of some entire minimal graph G, then S is the image of G by a vertical translation. If S is a properly immersed minimal surface in Sol_3 that lies on one side of a special plane, then S is another special plane.	**abstract**	We study the embedded Calabi-Yau problem for complete embedded constant mean curvature surfaces of finite topology or of positive injectivity radius in a simply-connected three-dimensional Lie group X endowed with a left-invariant Riemannian metric. We first prove a half-space theorem for constant mean curvature surfaces. This half-space theorem applies to certain properly immersed constant mean curvature surfaces of X contained in the complements of normal R^2 subgroups F of X. In the case X is a unimodular Lie group, our results imply that every minimal surface in X-F that is properly immersed in X is a left translate of F and that every complete embedded minimal surface of finite topology or of positive injectivity radius in X-F is also a left translate of F.		
	versions		**versions**			