

Brandolini, L.; Rigoli, M.; Setti, A. G.

On the existence of positive solutions of Yamabe-type equations on the Heisenberg group.
(English) [Zbl 0870.35029](#)

Electron. Res. Announc. Am. Math. Soc. 2, No. 3, 101-107 (1996).

Summary: We study nonexistence, existence and uniqueness of positive solutions of the equation $\Delta_{H^n} u + a(x)u - b(x)u^\sigma = 0$ with $\sigma > 1$ on the Heisenberg group H^n . Our results hold, with essentially no changes, also for the Euclidean version of the above equation. Even in this case they appear to be new.

MSC:

35H10 Hypoelliptic equations
35J70 Degenerate elliptic equations
43A80 Analysis on other specific Lie groups

Cited in **2** Documents

Keywords:

CR-Yamabe problem

Full Text: [DOI](#) [EuDML](#)

References:

- [1] B. Bianchini and M. Rigoli, Nonexistence and uniqueness of positive solutions of Yamabe type equations on nonpositively curved manifold, preprint. · [Zbl 0892.53019](#)
- [2] L. Brandolini, M. Rigoli, and A. G. Setti, Positive solutions of Yamabe-type equations on the Heisenberg group, preprint. · [Zbl 0948.35027](#)
- [3] Kuo-Shung Cheng and Jenn-Tsann Lin, On the elliptic equations $\Delta_{\mathbb{H}^n} u = f(x)$ and $\Delta_{\mathbb{H}^n} u = f(x)u^2$, Trans. Amer. Math. Soc. 304 (1987), no. 2, 639 – 668. · [Zbl 0635.35027](#) ·
- [4] Kuo-Shung Cheng and Wei-Ming Ni, On the structure of the conformal scalar curvature equation on \mathbb{H}^n , Indiana Univ. Math. J. 41 (1992), no. 1, 261 – 278. · [Zbl 0764.35037](#) · [doi:10.1512/iumj.1992.41.41015](#) · [doi.org](#)
- [5] Lars Hörmander, Hypoelliptic second order differential equations, Acta Math. 119 (1967), 147 – 171. · [Zbl 0156.10701](#) · [doi:10.1007/BF02392081](#) · [doi.org](#)
- [6] David Jerison and John M. Lee, A subelliptic, nonlinear eigenvalue problem and scalar curvature on CR manifolds, Microlocal analysis (Boulder, Colo., 1983) Contemp. Math., vol. 27, Amer. Math. Soc., Providence, RI, 1984, pp. 57 – 63. · [doi:10.1090/conm/027/741039](#) · [doi.org](#)
- [7] David Jerison and John M. Lee, The Yamabe problem on CR manifolds, J. Differential Geom. 25 (1987), no. 2, 167 – 197. · [Zbl 0661.32026](#)
- [8] David Jerison and John M. Lee, Extremals for the Sobolev inequality on the Heisenberg group and the CR Yamabe problem, J. Amer. Math. Soc. 1 (1988), no. 1, 1 – 13. · [Zbl 0634.32016](#) ·
- [9] Wei Ming Ni, On the elliptic equation $\Delta_{\mathbb{H}^n} u + \frac{2}{n-2}u^2 = 0$, its generalizations, and applications in geometry, Indiana Univ. Math. J. 31 (1982), no. 4, 493 – 529. · [Zbl 0496.35036](#) · [doi:10.1512/iumj.1982.31.31040](#) · [doi.org](#)
- [10] A. Ratto, M. Rigoli, and L. Véron, Scalar curvature and conformal deformation of noncompact Riemannian manifolds, Math. Z. (to appear). · [Zbl 0899.53033](#)

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