Zeitschrift: L'Enseignement Mathématique
Herausgeber: Commission Internationale de l'Enseignement Mathématique
Band: 31 (1985)
Heft: 1-2: L'ENSEIGNEMENT MATHÉMATIQUE

Artikel: HODGE DECOMPOSITION ON STRATIFIED LIE GROUPS
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Bibliographie
DOI: https://doi.org/10.5169/seals-54573

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We may set $g = D_1^* Kf$. Using the same notation as in the preceding theorem we have

$$(f, D_2^* D_2 Kf)_2 = \lim_{R \to \infty} (f, D_2^* D_2 Kf)_{D(R),\,2}$$

$$= \lim_{R \to \infty} \left((D_2 f, D_2 Kf)_{D(R),\,3} + \left(f, \sigma(D_2^*, d|x|) D_2 Kf\right)_{S(R),\,2}\right)$$

$$= \lim_{R \to \infty} \left(f, \sigma(D_2^*, d|x|) D_2 Kf\right)_{S(R),\,2} \qquad (\text{since } D_2 f = 0).$$

The same argument as in Theorem 6 proves that the limit is zero. This proves the theorem.

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(Reçu le 29 octobre 1984)

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