

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

$$\begin{aligned}
 (f, D_2^* D_2 Kf)_2 &= \lim_{R \rightarrow \infty} (f, D_2^* D_2 Kf)_{D(R), 2} \\
 &= \lim_{R \rightarrow \infty} ((D_2 f, D_2 Kf)_{D(R), 3} + (f, \sigma(D_2^*, d|x|) D_2 Kf)_{S(R), 2}) \\
 &= \lim_{R \rightarrow \infty} (f, \sigma(D_2^*, d|x|) D_2 Kf)_{S(R), 2} \quad (\text{since } D_2 f = 0).
 \end{aligned}$$

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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