

**Schmid, Wilfried**

**Boundary value problems for group invariant differential equations.** (English) Zbl 0621.22014

Élie Cartan et les mathématiques d'aujourd'hui, The mathematical heritage of Elie Cartan, Semin. Lyon 1984, Astérisque, No.Hors Sér. 1985, 311-321 (1985).

[For the entire collection see [Zbl 0573.00010](#).]

Let  $G$  be a connected semisimple Lie group with finite center and  $K$  its maximal compact subgroup. Let  $\mathfrak{g}$  be the complexified Lie algebra of  $G$ . The author defines two exact functors  $V \rightarrow V_{\min}$  and  $V \rightarrow V_{\max}$ , called minimal and maximal globalization, respectively, from the category of Harish-Chandra modules for  $(\mathfrak{g}, K)$  into the category of global representations of  $G$ . If a Harish-Chandra module is the module of  $K$ -finite vectors in a Banach representation  $(\pi, V_\pi)$  of  $G$ , the natural inclusion of the minimal globalization into the space  $V_\pi^\omega$  of analytic vectors in  $V_\pi$  is an isomorphism of topological vector spaces. Dually, the space of hyperfunction vectors  $V_\pi^{-\omega}$  of  $V_\pi$  is topologically isomorphic to the maximal globalization.

A number of interesting consequences of these results (including a new proof of Helgason's conjecture about the spaces of joint eigenfunctions of  $G$ -invariant differential operators on the Riemannian symmetric space  $G/K$ ) is discussed. Full details will appear elsewhere.

Reviewer: [D.Miličić](#)

**MSC:**

- [22E46](#) Semisimple Lie groups and their representations
- [43A85](#) Harmonic analysis on homogeneous spaces
- [58J32](#) Boundary value problems on manifolds

Cited in **6** Reviews  
Cited in **10** Documents

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connected semisimple Lie group; maximal compact subgroup; globalization; Harish-Chandra modules; global representations; analytic vectors; space of hyperfunction vectors; Helgason's conjecture; invariant differential operators; Riemannian symmetric space