

**Rice, John W.**

**Cousin complexes and resolutions of representations.** (English) [Zbl 0807.55007](#)

Eastwood, Michael (ed.) et al., The Penrose transform and analytic cohomology in representation theory. AMS-IMS-SIAM summer research conference, June 27 - July 3, 1992, South Hadley, MA, USA. Providence, RI: American Mathematical Society. *Contemp. Math.* 154, 197-215 (1993).

The author discusses Cousin complexes, resolutions of representations and related topics. The Cousin complexes are defined in terms of local cohomology, using some techniques from the theory of distributions. Some computations of local cohomology are obtained with the aid of the Thom isomorphism. The applications are devoted to the study of the double complex of a filtered complex, to the meromorphic Cousin-Dolbeault complex and to the BGG resolution. We mention that it is proved that some cohomology modules are Verma modules, via an argument of *J. L. Brylinski* [*Astérisque* 87-88, 43-60 (1981; [Zbl 0537.14010](#))] and the detailed discussion of the BGG resolution in the case  $G = SL(2, \mathbb{C})$ . There are discussed other methods suggested by the theory of distribution.

For the entire collection see [\[Zbl 0780.00026\]](#).

Reviewer: [D.Ştefănescu \(Bucureşti\)](#)

**MSC:**

[55N30](#) Sheaf cohomology in algebraic topology

[14F05](#) Sheaves, derived categories of sheaves, etc. (MSC2010)

[22E47](#) Representations of Lie and real algebraic groups: algebraic methods (Verma modules, etc.)

[58A12](#) de Rham theory in global analysis

**Keywords:**

$SL(2, \mathbb{C})$ ; Cousin complexes; resolutions of representations; Cousin- Dolbeault complex; Verma modules; BGG resolution