

1118-05-143

**Pauline Bailet\*** ([pauline.bailet@uni-bremen.de](mailto:pauline.bailet@uni-bremen.de)), Department Mathematics and Computer Science, University of Bremen, 28359 Bremen, Germany, and **Masahiko Yoshinaga** ([yoshinaga@math.sci.hokudai.ac.jp](mailto:yoshinaga@math.sci.hokudai.ac.jp)), Department of Mathematics, Hokkaido University, Sapporo, 060-0810, Japan. *Vanishing results for the Aomoto complex of real hyperplane arrangements via minimality*. Preliminary report.

Reference: P. Bailet, M. Yoshinaga: Vanishing results for the Aomoto complex of real hyperplane arrangements via minimality; arXiv:1512.05318

Let  $\mathcal{A} = \{H_1, \dots, H_n\} \subset \mathbb{R}^l$  be an essential arrangement of affine hyperplanes, and  $M(\mathcal{A}) = \mathbb{C}^l \setminus \bigcup_{H \in \mathcal{A}} H_{\mathbb{C}}$  be the complement of the complexified arrangement. Let  $A_R^\bullet(\mathcal{A})$  be the Orlik-Solomon algebra of  $\mathcal{A}$ , with generators  $e_i, 1 \leq i \leq n$ , and coefficients in a commutative unitary ring  $R$ . Consider the Aomoto complex  $(A_R^\bullet(\mathcal{A}), \omega \wedge)$  induced by  $\omega = \sum_{i=1}^n \lambda_i e_i$ . Aomoto complexes have a purely combinatorial description and several conditions for the vanishing of their cohomology are already known.

We give a vanishing result of the cohomology of the Aomoto complex in terms of nonresonant condition along the hyperplane at infinity of the coning of  $\mathcal{A}$ . The proof is using minimality of arrangements and descriptions of Aomoto complex in terms of chambers. Our methods also provide a new proof for the well known vanishing theorem of local system cohomology groups of  $M(\mathcal{A})$  which was first proved by Cohen, Dimca and Orlik.

(Received January 29, 2016)