1023-13-518 **Hal Schenck*** (`schenck@math.tamu.edu`), Mathematics Department, Texas A&M University, College Station, TX 77843-3368, and **Graham Denham** (`gdenham@uwo.ca`), Mathematics Department, University of Western Ontario, London, Ontaria, Canada. *A spectral sequence stratification of cohomology jump loci.* Preliminary report.

For a complex hyperplane arrangement in $\mathbb{C}^\ell$ with complement $X(A)$ and cohomology ring A, the resonance variety $R^k(A)$ is the loci of $a \in A_1$ such that the cohomology $H^k(A, \wedge a)$ of the Aomoto complex is nonvanishing. For example, $R^1(A)$ is the union of the tangent cones at $\mathbf{1}$ to the characteristic varieties of $\pi_1(X(A))$. Recent work shows that $R^1(A) = V(ann(Ext^{\ell-1}(F(A), S)))$, where S is a symmetric algebra and $F(A)$ is a finitely generated, graded S–module depending only on the cohomology ring of $X(A)$.

We generalize this result on the cohomology ring of an arrangement complement in two directions; we replace $F(A)$ with an arbitrary S–module M; if $pdim(M) = \ell$ then

$$R^k(M) = \bigcup_{k' \leq k} V(ann(Ext^{\ell-k'}(M, S))),$$

where $R^k(M)$ is defined in terms of Koszul cohomology. The Cartan–Eilenberg spectral sequence gives

$$Ext^i(Ext^j(M, S), S) \Rightarrow M,$$

yielding relationships between the $R^k(M)$ related to the filtration of M. (Received September 15, 2006)