1118-05-162 **Masahiko Yoshinaga*** (yoshinaga@math.sci.hokudai.ac.jp), Department of Mathematics, Hokkaido University, North 10, West 8, Kita-ku, Sapporo, 060-0810. *Linial arrangements and Eulerian polynomials.*

For an irreducible root system Φ, the n-th Linial arrangement $\mathcal{A}_{\Phi}^{[1,n]}$ is the set of hyperplanes defined by $\alpha = k$, where $\alpha \in \Phi^+$ and $k = 1, \dots, n$.

We will discuss the relation between the characteristic polynomial $\chi(\mathcal{A}_{\Phi}^{[1,n]}, t)$ of the Linial arrangement and the Eulerian polynomial. More precisely, the main result asserts that the characteristic polynomial can be expressed by using the Eulerian polynomial.

We also discuss applications of the above formula. We conclude that for exceptional root systems $\Phi = E_6, E_7, E_8, F_4$ and for sufficiently large $n \gg 0$, all the root of the characteristic polynomial have the same real part, which gives a partial affirmative answer to a conjecture by Postnikov and Stanley.

For type A_ℓ root system, Postnikov, Stanley and Athanasiadis have already obtained an explicit formula for the characteristic polynomial. Comparison with the new formula leads to a non trivial polynomial congruence satisfied by the Eulerian polynomial. We finally remark that the congruence played an important role in Euler's (non justified) computation of special values of Riemann zeta function. (Received January 30, 2016)