1070-32-318 **Daisuke Suyama** and **Hiroaki Terao*** (hterao00@za3.so-net.ne.jp), Department of Mathematics, Hokkaido University, Sapporo, 060-0810, Japan. *The Shi arrangements and the Bernoulli numbers.*

The Shi arrangement was introduced by J.-Y. Shi in relation to the Kazhdan-Lustzig cells of affine Weyl groups. It is an affine deformation of the arrangement of the type A_ℓ. One of its remarkable properties is the fact that the Poincaré polynomial factors as $(t+\ell+1)^\ell$. In particular, the number of chambers is equal to $(\ell+2)^\ell$. Ch. Athanasiadis showed that the cone $\mathcal{A}$ of the Shi arrangement is a free arrangement, which explains why the Poincaré polynomial factors. He used the addition theorem to show the freeness. In this talk, we give an explicit formula for a basis for the derivation module $D(\mathcal{A})$ in terms of the Bernoulli numbers, which are proved to be inherent in the study of Shi arrangements. (Received February 15, 2011)