

Consider the following map  $\phi$  defined as below:

$$\phi : \lim_{\substack{\underline{u} \\ \underline{v}}} H_{\delta}(H(C^p(\underline{u}, K^q))) \longrightarrow H^p(X, \mathbb{A}^q)$$

$$\langle \sigma + \text{im } d^{p, q-1} + \frac{\delta(\ker d^{p-1, q}) + \text{im } d^{p, q-1}}{\text{im } d^{p, q-1}}, \underline{u} \rangle \mapsto \langle \sigma + \text{im } d^{p, q-1}, \underline{u} \rangle$$

↓  
representing the limits.

$\phi$  is well-defined, for  $d$  &  $\delta$  commute with  $\varphi$ ,  
 $\delta d = d \delta$ , and  
 $\langle \sigma + \text{im } d^{p, q-1}, \underline{u} \rangle \in H^p(X, \mathbb{A}^q)$ . See note p435 back.

Suppose  $\langle \sigma + \text{im } d^{p, q-1}, \underline{u} \rangle = 0$  in  $H^p(X, \mathbb{A}^q)$ .

Perhaps after refining the covering  $\underline{u}$ , say  $\underline{u}'$ ,

$$\sigma + \text{im } d^{p, q-1}(\underline{u}') = 0$$

$\Rightarrow \sigma = d\eta$ , more precisely, since  $\sigma = \{\sigma_{\alpha}, \sigma_{\alpha} \in K^q(U'_{\alpha})\}$ ,  $\sigma_{\alpha} = d\eta_{\alpha}$ ,  $\eta_{\alpha} \in K^{q-1}(U'_{\alpha})$ .

$$\Rightarrow \langle \sigma + \text{im } d^{p, q-1} + \bigcirc, \underline{u}' \rangle = 0 \text{ in } \lim_{\underline{u}} H_{\delta}(H(C^p(\underline{u}, K^q)))$$

$\Rightarrow \phi$  is one to one.

Clearly  $\phi$  is onto. Thus we can conclude that

$$\lim_{\underline{u}} H_{\delta}(H(C^p(\underline{u}, K^q))) = H^p(X, \mathbb{A}^q). //$$

$$K^n = \bigoplus_{p+q=n} C^p(\underline{u}, K^q) \quad "F^q K^n = \bigoplus_{p+q=n} C^p(\underline{u}, K^q)"$$

$$"E_{\circ}^{p, q} = \frac{F^p K^{p+q}}{F^{p+1} K^{p+q}} = \frac{C^p(\underline{u}, K^{p+q}) \oplus \dots \oplus C^q(\underline{u}, K^p)}{C^p(\underline{u}, K^{p+q}) \oplus \dots \oplus C^q(\underline{u}, K^{p+1})} \cong C^q(\underline{u}, K^p)"$$