independent of P, and we should have written $\varphi_\nu(v)$ s.t $\varphi_\nu(0) = \dfrac{P(A_{p\nu})}{\det(A_{p\nu})}$, i.e.,

$$\sum_\nu \int_{\partial B_\epsilon(p_\nu)} \varphi_\nu(v)\ \beta(v,\bar{v})$$

$$= \sum_\nu \frac{P(A_{p\nu})}{\det(A_{p\nu})}$$

Put $P = \det$, then $\det\left(\frac{\sqrt{-1}}{2\pi}\Theta\right) = C_n(T'M) =$ Euler class of M $\Rightarrow$ $\int_M C_n(T'M) = \chi(M)$. by Gauss-Bonnet Formula III.

$$RHS = \sum_\nu \frac{P(A_{p\nu})}{\det(A_{p\nu})} = \#\text{ of zeros of } v.$$

Recall the definition of $c_v(P)$ of v.

$$v = \sum a_{ij} z_i \frac{\partial}{\partial z_j} + [\partial]$$

$$= \sum a_{ij}(x_i + \sqrt{-1}\, y_i)\frac{1}{2}\left(\frac{\partial}{\partial x_j} - \sqrt{-1}\frac{\partial}{\partial y_j}\right) + [\partial]$$

$$= \sum \frac{1}{2} a_{ij} x_i \frac{\partial}{\partial x_j} + \frac{\sqrt{-1}}{2} a_{ij} y_i \frac{\partial}{\partial x_j} - \frac{\sqrt{-1}}{2} a_{ij} x_i \frac{\partial}{\partial y_j} + \frac{1}{2} a_{ij} y_i \frac{\partial}{\partial y_j} + [\partial]$$

Put $y_i = x_{n+i}$. $\Rightarrow$

$$\frac{1}{2}\begin{pmatrix} A, & -A \\ A, & A \end{pmatrix} = \Delta = \frac{1}{2}\begin{pmatrix} a_{11}, a_{12} \cdots a_{1n}, & -a_{11}, \cdots & -a_{1n} \\ & & \\ a_{11}, a_{12}, \cdots a_{1n}, & a_{11}. \cdots & a_{1n} \end{pmatrix}$$