See P 152 . Wells & P 279 . Bott. $\sqcup\!\sqcup$

But $\chi(\mathcal{O}_M)$ is obviously independent of t, and so all terms on the right involving nonzero powers of t are necessarily zero; thus

$$\chi(\mathcal{O}_M) = \sum_{v(p)=0} \frac{Td_n(P^1(A_p), \cdots P^n(A_p))}{\det A_p},$$

and finally, by the Bott residue formula, we can evaluate this last term to arrive, in this special case, at the famous

Hirzebruch-Riemann-Roch formula

$$\chi(\mathcal{O}_M) = Td_n(c_1(M), \cdots c_n(M)).$$

Γ $$\chi(\mathcal{O}_M) = (-1)^n \sum_{v(p)=0} \frac{Td_n(P^1(A_p) \cdots P^n(A_p))}{\det A_p}$$

$$\int_M \chi(\mathcal{O}_M) = \chi(\mathcal{O}_M) = (-1)^n \sum_{v(p)=0} \frac{Td_n(P^1(A_p) \cdots P^n(A_p))}{\det A_p}$$

$$= (-1)^n \int_M Td_n(\,.\;\; P^1(\tfrac{\sqrt{-1}}{2\pi}\Theta), \cdots P^n(\tfrac{\sqrt{-1}}{2\pi}\Theta))$$

$$= (-1)^n \int_M Td_n(C_1(M), \cdots C_n(M))$$

$$= (-1)^n\, Td_n(C_1(M), \cdots C_n(M)).$$