

Step 4. $A_R = P_R^* \Rightarrow$

$$\text{Coker } P_R (Z/p, Z/p) = \left[\text{Tor } A_R (Z/p, Z/p) \right]^* \\ = \left[P(t) \otimes E(w) \right]^* =$$

$$E(w)^* \otimes P(t)^* = E(w^*) \otimes P(t^*)$$

as Hopf algebras, $|t^*| = |t|, |w^*| = |w|$

$$\therefore \text{Coker } P (Z/p, Z/p) =$$

$$E(2n-1) \otimes P(2pn-2) \otimes E(2pn-1) \otimes P(2p^2n-2) \otimes \dots$$

$$= E(2n-1, 2pn-1, 2p^2n-1, \dots)$$

$$\otimes P(2pn-2, 2p^2n-2, \dots) \quad \text{as Hopf}$$

algebras and

$$H(\Omega^{\mathbb{Z}} S^{2n+1}) = E(2n-1, 2pn-1, \dots) \otimes P(2pn-2, 2p^2n-2, \dots)$$

as algebras,