花的纸笔卷着 30 : 己知(2.25)式, V1=|V1|e, V2=|V2|e,02 a II R L IZa  $v_1^{\dagger}$   $v_1^{\dagger}$   $v_1^{\dagger}$   $v_1^{\dagger}$   $v_2^{\dagger}$   $v_1^{\dagger}$   $v_1^{\dagger}$   $v_2^{\dagger}$   $v_1^{\dagger}$   $v_1^{\dagger}$   $v_1^{\dagger}$   $v_2^{\dagger}$   $v_1^{\dagger}$   $v_1^{\dagger}$   $v_1^{\dagger}$   $v_2^{\dagger}$   $v_1^{\dagger}$   $v_1^{\dagger}$   $v_2^{\dagger}$   $v_1^{\dagger}$   $v_1^{\dagger}$   $v_2^{\dagger}$   $v_1^{\dagger}$   $v_2^{\dagger}$   $v_1^{\dagger}$   $v_2^{\dagger}$   $v_2^{\dagger}$ Z=R+JwL=121e , 012=01-02 可推算 (2-26)  $S_{12} = V_1 \cdot I_1^*$  , 因為  $I_1 = \frac{V_1 - V_2}{7}$ 圆 2.14 單個電路  $S_{12} = V_1 \cdot (\frac{V_1 - V_2}{2})^{\frac{1}{2}} = \frac{V_1 \cdot V_1^{\frac{1}{2}} - V_1 \cdot V_2^{\frac{1}{2}}}{|2| \cdot e^{\frac{1}{2}} |2|} = \frac{|V_1|^2 \cdot e^{\frac{1}{2}} |2|}{|2| \cdot e^{\frac{1}{2}} |2|} = \frac{|V_1|^2 \cdot e^{\frac{1}{2}} |2|}{|2|} \cdot e^{\frac{1}{2}} |2|}{|2|} = \frac{|V_1|^2 \cdot e^{\frac{1}{2}} |2|}{|2|} \cdot e^{\frac{1}{2}} |2|}$ 可推導(2.27) Szl = V2·I2\* , 因為 I2 = V2-V1  $|S_{2}| = |V_{2} \cdot (\frac{|V_{2} - V_{1}|}{2})^{*} = \frac{|V_{2}|^{2}}{|Z|} \cdot e^{\frac{1}{2}|Z|} \cdot e$ \$4xx (2.28) - S21 = - 1/212 . e 3/2 + 1/2/14/1 . e 3/2 . e - 3012 (2.28)  $S_{12} = C_1 - Be^{j\theta_{12}}$ ,  $(2.30) - S_{21} = C_2 + Be^{-j\theta_{12}}$ 送端圆圆心 C1=1/11 e36, 受端圆圆心 C2=-1/21 e36, 丰图=1/21 e36 簡化,假設 R=0, 是=jwL=jX=> 日=X, 任=90°,代入(2.26)和(2.28)  $(2.26) S_{12} = \frac{|V_1|^2}{|z|} \cdot (\cos 90^\circ + j \sin 90^\circ) - \frac{|V_1||V_2|}{|z|} \cdot (\cos 90^\circ + j \sin 90^\circ) \cdot (\cos 91z + j \sin 9z)$ = 1 1/12 - 1 1/11/2 cos 012 + 1/11/2 Sin 012 = P12 + Jan 所以 夏功  $P_{12} = \frac{|V_1||V_2|}{X} Sin \theta_{12} (2.31), Q_{12} = \frac{|V_1|^2}{X} - \frac{|V_1||V_2|}{X} cos O_{12} (2.32)$  $(2.27) S_{21} = \frac{|V_{2}|^{2}}{|z|} \cdot (\cos 90^{\circ} + j \sin 90^{\circ}) - \frac{|V_{2}||V_{1}||}{|z|} \cdot (\cos 90^{\circ} + j \sin 90^{\circ}) \cdot (\cos (-012) + j \sin (-012))$ =  $\frac{|V_2|^2}{|V|} - \frac{|V_1||V_2|}{|V|} \cos \theta_{12} - \frac{|V_1||V_2|}{|V|} \sin \theta_{12} = |P_2| + \frac{1}{2} |Q_2|$ M以實功 P21 = - [V1] [V2] SiM Θ12 = - P12  $Q_{21} = \frac{|V_{2}|^{2}}{X} - \frac{|V_{2}||V_{1}|}{X} \cos \Theta_{12}$  (2.33)

长步: (231) 宮功 P. = -P - IVIIVII 例 2.14 如圖系統中的有的 值都是單相值 (231) 夏功  $P_{12} = -P_{21} = \frac{|V_1||V_2|}{X}$  Sin  $\Theta_{12}$  ,因為流進  $B_{13}$  2的夏对等於流出的夏对 \$71x P12 = SD2 = 1 = 1 + 1 Sin On => Sin On = 0,5 => On = 30° => LV2 = -30° (2.32) Q12 = 1/12 - 1/1/1/2 COS 012 (2.33) Q21 = 1/2/2 - 1/1/1/2/ COS 612 因為流進 BUS 2 的虚功等於流出的虚功  $PTYX QG2 = QLI = \frac{|V_2|^2}{V} - \frac{|V_1||V_2|}{V} \cos \Theta_{12}$  (250 |V| = 1, |V\_2| = 1, X=Q,5,  $\Theta_{12}=0$ ) = 2-2(0530°=0.268 ,QG270相當於電容器電源 C)如果 Qq2=0,能供應負載 SD2嗎? 创如果能, V2 又是多少? 已知 IVII=1, X=0.5, 未知 V2=?, 日2=?  $\pm (2.31)$   $P_{12} = -P_{21} = \frac{|V_1||V_2|}{x}$   $Sin\theta_{12} = 2|V_2|$   $Sin\theta_{12} = SD_2 = 1$  — D $\pm (2.33)$   $QG_2 = 0 = Q_2 = \frac{|V_2|^2}{X} - \frac{|V_1||V_2|}{X} \cos \theta_{12} = 2|V_2|^2 - 2|V_2|\cos \theta_{12} = 0$ 由①可得 Sin O/2 = 1/21 ,由②可得 COS 0/2=1/21 My Sin On = = = > 2 Sin On COS On= 1 => Sin 2012 = 1

圆小型型 圆小一1/212 = -21/212, 絕對值 21/212 半徑 = [V1||V2| = 2|V2|

=) V2 = 0.707 1-45°

已知(2.25)式, V= |V1|e101, V= |V2|e102 Z=R+jwL= 121e , 012=0,-02 可推事(2.26) S12=V1·I, 因為I,=<u>V1-V2</u> 圆 2.14 單相軍路  $S_{12} = V_1 \cdot (\frac{V_1 - V_2}{2})^{\frac{1}{2}} = \frac{V_1 \cdot V_1^{\frac{1}{2}} - V_1 \cdot V_2^{\frac{1}{2}}}{|2| \cdot e^{\frac{1}{2}} \cdot e^{\frac{1}{2}}} = \frac{|V_1|^2}{|2|} \cdot e^{\frac{1}{2}} \cdot e^{\frac{1}{2}} = \frac{|V_1|^2}{|2|} \cdot e^{\frac{1}{2}} = \frac{|V_1|$ 可推導 (2.27)  $S_{21} = V_2 \cdot I_2^*$  , 因為  $I_2 = \frac{V_2 - V_1}{2}$  $S_{21} = V_{2} \cdot (\frac{V_{2} - V_{1}}{2})^{*} = \frac{|V_{21}|^{2}}{|z|} \cdot e^{\frac{1}{2}|z|} \cdot e^{\frac{1}{2}|z|} \cdot e^{\frac{1}{2}|z|} \cdot e^{\frac{1}{2}|z|} \cdot e^{\frac{1}{2}|z|}$ PAX (2.28) - S21 = - 1/212 . e 5/2 + 1/2/14/1 . e 5/2 . e - 10/2 (2.28)  $S_{12} = C_1 - Be^{j\theta_{12}}$ ,  $(2.30) - S_{21} = C_2 + Be^{-j\theta_{12}}$ 送端圆圆心 C1 = 1/11 e36 , 受端圆圆心 C2 = -1/21 e36, 半徑B= 1/11/1/1/1/ e36 簡化,假設 R=0, Z=JWL=jX=> 12|=X, 及=90°, 代入(2,26)和(2,28) 2.26) SIZ = 1/11 · (cos 90°+ j sin 90°) - 1/11/21 · (cos 90°+ j sin 90°) · (cos 012+ j sin 012) = j 1/1 - j 1/1 1/2 cos 012 + 1/1 1/2 sin 012 = P12 + JQ12 所以 夏功  $P_{12} = \frac{|V_1||V_2|}{X} \sin \theta_{12} (2.31)$ ,  $Q_{12} = \frac{|V_1|^2}{X} - \frac{|V_1||V_2|}{X} \cos \theta_{12} (2.32)$ [2.27] Sz1 = 1/2/2. (cos 90°+ j sin 90°) - 1/2/1/1. (cos 90°+ j sin 90°). (cos(-012)+ j sin (-012) =  $\frac{1}{2} \frac{|v_2|^2}{|v_2|^2} - \frac{1}{2} \frac{|v_1||v_2|}{|v_2|^2} \cos \theta_{12} - \frac{|v_1||v_2|}{|v_2|^2} \sin \theta_{12} = \frac{1}{2} \frac{|v_2|^2}{|v_2|^2} + \frac{1}{2} \frac{|v_2|^2}{|v_2|^2} + \frac{1}{2} \frac{|v_1||v_2|}{|v_2|^2} \sin \theta_{12} = \frac{1}{2} \frac{|v_1||v_2||v_2|}{|v_2|^2} \sin \theta_{12} = \frac{1}{2} \frac{|v_1||v_2|}{|v_2|^2} \sin \theta_{12} = \frac{1}{2} \frac{|v_1||v_2|}{|$ 所以實好 P21 = - [VI] [V2] SIN O12 = - P12 Q21 = 1/212 - 1/2/1/1 COS 012 (2.33)