

Lect. 22 ; Apr. 22, 2010

①

Stokes' Parameters (Supplement).

Quantity the state of polarization of the light

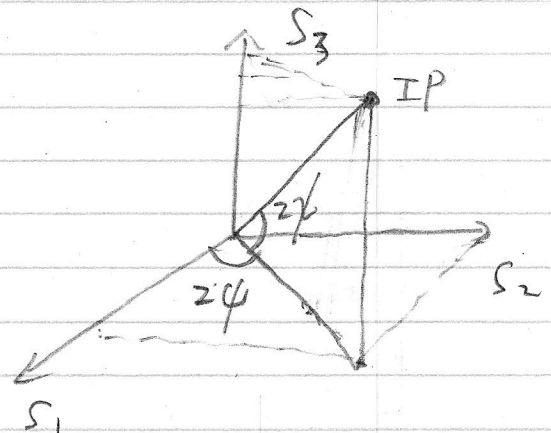
$$S = (S_0, S_1, S_2, S_3) = (I, Q, U, V)$$

$$\left\{ \begin{array}{l} S_0 = I : \text{total Intensity} \\ Q = S_1 = \underline{I} P \cdot \cos 2\psi \cos 2\chi : \text{linear polarization} \\ U = S_2 = \underline{I} P \cdot \sin 2\psi \cos 2\chi : \text{linear polarization at } 90^\circ \\ V = S_3 = \underline{I} P \cdot \sin 2\psi : \text{circular polarization} \\ P = \frac{\sqrt{S_1^2 + S_2^2 + S_3^2}}{I} : \text{degree of polarization} \end{array} \right.$$

$$\tan 2\psi = \frac{S_3}{\sqrt{S_1^2 + S_2^2}}$$

$$\tan 2\chi = \frac{S_2}{S_1}$$

$$\sqrt{Q^2 + U^2 + V^2} : \text{total polarization}$$



Poincaré sphere

