

Electrical and optical properties of materials

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Part 3: Piezo- pry- and ferro-electricity

$$S = sT + d_p E \quad (3.1)$$

$$P = \chi_e \epsilon_0 E + d_p T \quad (3.2)$$

$$E_B = \frac{2p_A}{4\pi\epsilon_0 a^3} \quad (3.3)$$

$$p_B = \frac{2p_A \alpha_B}{4\pi\epsilon_0 a^3} \quad (3.4)$$

$$\alpha_B > 2\pi\epsilon_0 a^3 \quad (3.5)$$