459.731 Theory of Poroelasticity

Spring, 2010, Ki-Bok Min

Assistant Professor, Energy Resources Engineering, Seoul National University

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1.
Hooke's law for poroelastic material can be described as follows.

$$\varepsilon_{ij} = \frac{1}{2\mu}\left(\tau_{ij} - \frac{\nu}{1+\nu}\tau_{kk}\delta_{ij}\right) - \frac{\alpha}{3K}p_p\delta_{ij} \qquad (1)$$

This equation can be also described for effective stresses as follows.

$$\tau_{ij} - \alpha P_p \delta_{ij} = 2\mu\varepsilon_{ij} + \lambda\varepsilon_{kk}\delta_{ij} \qquad (2)$$

Show that above equation can be obtained from (1).