Golden Ratio in the Point Sink Induced Consolidation Settlement of a Poroelastic Half Space

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Abstract

The golden ratio has been well known in mathematics, science, biology, art, architecture, nature and beyond (Sen & Agarwal, 2008), which is the irrational algebraic number. It's interesting to find that the golden ratio exists in the point sink induced consolidation settlement of a homogeneous isotropic poroelastic half space. Examples of the golden ratio in engineering include the study of shear flow in porous half space (Puri & Jordan, 2006) and classical mechanics of coupled-oscillator problem (Moorman & Goff, 2007).

Keyword：Golden Ratio, Point Sink, Half Space, Closed-form Solution