

增强体复合土动弹性模量影响因素的研究

Experimental study on factors influencing the dynamic elastic modulus of composite soil with different reinforcements

中文关键词: [水泥土增强体](#) [灰土增强体](#) [水泥砂浆增强体](#) [复合土](#) [动荷载](#) [动弹性模量](#) [最大动弹性模量](#)

英文关键词: [composite soil](#) [reinforcement](#) [dynamic elastic modulus](#) [influencing factors](#)

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中文摘要:

通过水泥土、灰土、水泥砂浆3种增强体复合试样以及纯粉土试样的动三轴试验,研究了不同增强体对土体动弹性模量的影响,讨论了围压、置换率的影响程度。研究发现:增强体的设置使得土体的动弹性模量 E_d 及最大动弹性模量 E_{dmax} 显著提高,复合试样的 E_d 和 E_{dmax} 均随增强体刚度、置换率及围压的增大而增大。在各影响因素中,对水泥砂浆复合试样而言增强体设置对 E_{dmax} 的提高程度最大;置换率增加对 E_{dmax} 的提高程度随围压的增加而降低,且置换率对水泥土增强体复合土的影响最大,对水泥砂浆增强体复合土的影响最小;围压的增加对 E_d

英文摘要:

The effect of composite soil with different reinforcement, including the cement soil, lime soil and cement mortar, on dynamic elastic modulus of soil was experimentally studied by dynamic tri-axial test. It is found that the reinforcement remarkably elevates the soil dynamic elastic modulus E_d and maximum dynamic elastic modulus E_{dmax} , and these moduli increase following the increase of stiffness of reinforcement, replacement ratio and confining pressure. Among these three kinds of reinforcement to be studied, the effect of cement mortar reinforcement on elevating E_{dmax} is the most. The effect of replacement increase on E_{dmax} decreases as the confining pressure increases. The replacement ratio has the greatest effect upon the composite silt with cement soil reinforcement but the smallest effect upon those with cement mortar reinforcement. The effect of confining pressure decreases as replacement ratio increases, and it varies by different reinforcement at lower replacement ratio. However, following the increase of replacement ratio the influence of confining pressure on different reinforced composite soils tends to a same level. The formulas of E_{dmax} for different kinds of reinforcement with replacement ratio and confining pressure taken into account are given.

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