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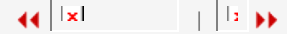
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## 碳纤维混凝土三向受压力电性能试验研究

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### EXPERIMENTAL RESEARCH ON MECHANICAL AND ELECTRICAL PROPERTIES OF CARBON FIBER REINFORCED CONCRETE IN TRIAXIAL COMPRESSION

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#### 摘要

试验研究了三向受压碳纤维混凝土的力学、电学性能及力电关系。对连接在直流回路中的碳纤维混凝土试件施加单调及循环荷载,处于三向受压状态的试件所受荷载与其电阻同步变化。用同批试件做单向受压试验,对比发现,在相同的轴向压力下,有围压和无围压的碳纤维混凝土的力电效应具有相似的变化趋势,即荷载增大,电阻下降;荷载减小,电阻上升。不同点是,在单调及循环荷载作用下,三向受压混凝土电阻变化率比单向受压混凝土的大,而且电阻幅值更为稳定。

关键词: 碳纤维混凝土 力电性能 单向受压 三向受压 电阻变化率

#### Abstract:

Electrically conductible concrete formed by adding shortly cut carbon fiber into common concrete was tested for conductivity and mechanical properties in triaxial compression under the actions of one-time and cyclic loading by direct current measurement. It shows that the changes in electrical resistance and load are synchronous. Compared with carbon fiber reinforced concrete in mono axial compression, the trend of electrical-mechanical relations is similar, i. e., the resistance goes down as the load up, and the resistance goes up as the load down. The difference is that the change rate of resistance is larger in triaxial compression than that in mono axial compression under the action of one-time or cyclic loading. Also, the changing range of resistance is more stable in triaxial compression than that in mono axial compression.

Key words: carbon fiber reinforced concrete force-electricity properties mono axial compression triaxial compression the change rate of resistance

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