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二次受力钢筋混凝土连续叠合梁的非线性分析

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摘 要：对钢筋混凝土连续叠合梁的截面受力性能进行非线性分析,得出叠合梁跨中截面的受力钢筋应力超前值比简支叠合梁的大,后浇混凝土受压应力滞后值比简支叠合梁的小,造成第1阶段的曲率、挠度增长过快,裂缝出现过早.利用有限元分析,发现连续叠合梁具有跨中截面弯矩超前,支座负钢筋应力滞后的特征,促使跨中和支座之间不断发生塑性内力重分布,从而提高了连续叠合梁的塑性变形能力、承载力、抗裂性.

关键字：二次受力;非线性;连续叠合梁;有限元

Nonlinear analysis of the reinforced concrete continuous composite beams under two-stage

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Abstract: Through the nonlinear analysis of loading properties about continuous composite beams under two-stage, it is shown that this composite construct's cases of stress excess of tensile steel are more serious,and the amounts of strain lag of added concrete are smaller than single supported composite beam's. These cases cause faster increase of curvature,crack and deflection under fist-stage. Using method of finite element, this paper shows that the continuous composite beams have these properties of moment excess in middle span and stress lag of negative steel in abutment.These properties result in plastic redistribution of section internal force between middle span and abutment, which enhance flexure strength, crack-resistance and ductility.

Key words:two-stage; nonlinear; continuous composite bears; finite element

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