三原色影像光彈法與鑽孔法量測預壓混凝土之釋放應力研究

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摘要

This paper aims at using null-balance compens-ation instrument and standard cantilever beam test to probe into RGB of color image stress fringe order and decide RGB of standard fringe order which is going to be the standard processing of digital image discreted processing. The research integrates reflection photoelasticity with hole-drilling method, exerts stable pre-stressed upon concrete and then cohere photoelastic coatings to concrete surface and drill hole on it using reflection photoelasticity to measure release stress of pre-stressed concrete. Through the changes of fringe patterns on photoelastic coatings and cooperating with digital image discreted processing, from photoelastic coatings, it will obtain stress field of residual stress, and compare it with elasticity theory and then figure out pre-stress. Therefore, it is practicable to applies digital image discreted processing and hole-drilling method to measure release stress of pre-stressed concrete.

關鍵字：Digital Image Photoelasticity Method, Null-Balance Compens-ation Method, Digital Image Discreted Processing, Hole-Drilling Method