

## Algorithm for Estimating Deflection of Reinforced Concrete Beams Based on Crack Propagation Using DIC and FEA

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### ABSTRACT

This study proposes an algorithm based on the direct relationship between deflection and crack propagation of reinforced concrete (RC) beams obtained by the digital image correlation (DIC) technique. The algorithm estimates the deflection of RC beams directly from the crack propagation. A parametric study of 30 beams was conducted to verify the algorithm by finite element analysis. The results show that the proposed algorithm simplifies the deflection estimation process and effectively calculates the deflection based on the crack condition within an 8% error.

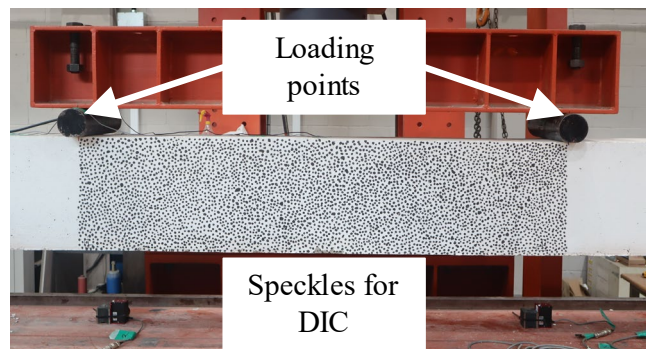


Fig. 1 Experimental setup for the DIC application

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### REFERENCES

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