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Corrosion-induced cracking and bond behaviour of corroded reinforcement bars in SFRC

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1 **Corrosion-induced cracking and bond behaviour of corroded**  
2 **reinforcement bars in SFRC**

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8 **Abstract**

9 This paper investigates, experimentally and numerically, the effect of fibre reinforcement on the  
10 initiation of corrosion-induced cracks in concrete and the bond behaviour of corroded reinforcement  
11 bars in fibre reinforced concrete. The fibres, due to their confining effect, contributed to delay crack  
12 initiation, improve the post-peak bond behaviour and retain the initial splitting strength for  
13 corrosion levels of up to 8%. The mechanisms for delayed crack initiation were explained through  
14 3D finite element analyses of the experiments whereas a 1D model, using experimental bond-slip  
15 curves as an input, was employed to quantify the beneficial effect of fibres on the reinforcement  
16 anchorage length.

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19 Keywords:

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