

# FRPRCS-14 SYMPOSIUM



Belfast - June 2019

The 14th International Symposium on Fiber-Reinforced Polymer Reinforcement for Concrete Structure

4th - 7th June - Queens University Belfast



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## **FRP materials: properties, tests and standards**

### [Creep Rupture Testing of GFRP Bars under Sustained Loading](#)

M. Rossini, E. Saqan, G. Pulvirenti, A. Nanni

### [Bond Performance of GFRP Rebars Embedded in High Volume Fly Ash Concrete](#)

A. Al-Khafaji, J.J. Myers, and H. Alghazali

### [Study on the Anchor Efficiency and Stress Relaxation of BFRP Bars using Digital Image Correlation and FBG Sensing Technology](#)

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### [Cold Temperature Effects on the Impact Resistance of SFRC Panels Strengthened with FRP Straps](#)

M.J. Beirnes, R.G. Wight, M-A. Dagenais

### [Static behaviour of circumferential stress releasing anchor for large-capacity FRP cable](#)

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### [An Innovative Tensile Test for Short GFRP Bar Samples](#)

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### [Improved Endurance Limits for GFRP Reinforcement of Concrete](#)

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### [GFRP Bars Extracted from Bridges in Service for 15 to 20 Years](#)

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### [Durability Evaluation of Bridge-Extracted GFRP Bars](#)

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### [Characterisation of carbon fibre recovered by pyrolysis using thermal gravimetric analysis \(TGA\)](#)

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### [Acid penetration kinetics in externally bonded FRP-strengthened reinforced concrete structures: mechanism and prediction](#)

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### [The Effect of Elevated Temperatures on the Tensile Strength of CFRP Bars with a Cladding Layer](#)

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[Bond Behavior of GFRP Rebars in Reinforced Concrete Members under Flexure](#)

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[Impact Test of RC Beams Flexurally Strengthened with AFRP Sheet Varying Sheet Volume](#)

N. Kishi, M. Komuro, T. Kawarai, H. Mikami

[Elasto-plastic impact response analysis of RC beams flexurally strengthened with externally bonded FRP sheet](#)

T. Kawarai, M. Komuro, N. Kishi, H. Mikami

[Quasi-Continuous Strain Measurement with Distributed Fibre-Optic Sensors in Reinforcement Bars and Externally Bonded CFRP Strips at Concrete Slabs – Experiment and Modelling](#)

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[Bond strength of GFRP reinforcing bars in concrete containing seawater](#)

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[Single shear pull-off test of FRP-to-concrete and mortar bond](#)

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[Flexural Evaluation of RC One-Way Slabs Strengthened with Different Composite Materials](#)

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[Experimental investigation of NSM Carbon Fibre Strand Sheet \(CFSS\) method for flexural strengthening of the RC beams](#)

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[Experimental Investigation of Fire-damaged Reinforced Concrete Columns Retrofitted with CFRP Jackets](#)

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[Structural Strengthening of Concrete Footings Using FRP and External Prestressing](#)

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[Bridge Widening and Strengthening Using CFRP Composites – Experimental Investigation](#)

C. Tan, J. Xu and R. Aboutaha

[RC beams strengthened by prestressed CFRP plate subjected to sustained loading](#)

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[Possible Interaction between the Existing Transverse Steel and the Rehabilitating FRP Shear Reinforcement in RC Beams Strengthened with EB, NSM, ETS and L-Shaped FRP Methods](#)

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[Design Considerations of Anchored Carbon Fiber Reinforced Polymer \(CFRP\) Anchors](#)

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[A New Solution for Reconstruction of Deteriorated Concrete Pipelines](#)

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[Structural Repair of Submerged Piles and Seawalls](#)

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[Compressive Membrane Action in FRP NSM strengthened slabs](#)

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[From Hybrid Composite Plate \(HCP\) to SMartPlate - Innovative Strengthening and Post-tensioning Solutions for RC Elements](#)

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[Large-Scale Tests on the Structural and Deformation Behaviour of I-Beams with Carbon Reinforcement](#)

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[Initial Estimate of Short and Long-Term Prestress Losses of BFRP Pretensioned RC Beams](#)

A. Pavlović, T. Donchev, D. Petkova and M. Limbachiya

[Production and Structural Performance of Thin Doubly Curved Elements Prestressed with CFRP Tendons](#)

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[Behaviour of BFRP reinforced concrete element under axial loading](#)

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[Experimental investigation of FRP reinforced RC frames under cyclic in-plane loading](#)

G. Hopartean, T. Donchev, D. Petkova, C. Georgopoulos, M. Limbachiya, and Z. El Kashik

[Behaviour of GFRP-steel reinforced I shape beams with steel fibers as shear reinforcement](#)

Ali Edalat-Behbahani, Fatemeh Soltanzadeh, Joaquim Barros, Eduardo Pereira

[The Triple-layer Sandwich Panel Made from Lightweight Self-Compacting Concrete and Reinforced with Hybrid GFRP/Steel bars and meshes](#)

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[A New Type of GFRP Shear Reinforcement for Slab-Column Edge Connections subjected to Reversed-Cyclic Lateral Load](#)

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[Behaviour of Continuous Concrete Deep Beams Reinforced with GFRP Headed Bars](#)

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[Performance of Solar Cells Integrated with Fiber-Reinforced Polymer-Confined Concrete Beams under Bending Load](#)

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[Behavior of Concrete-Filled Near-Cross-Ply Filament-Wound GFRP Tubes Loaded in Combined Flexure and Torsion](#)

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[Effect of concrete strength and FRP confinement on the compressive behaviour of FRP-HSC-steel double-skin columns](#)

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[Shear Capacity of Carbon Fibre Textile Reinforced Concrete Slabs with Planar and C-Shaped Shear Reinforcement](#)

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[Thermo-mechanical analysis of Fibre reinforced cementitious matrix \(FRCM\) systems](#)

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[Flexure Critical Corroded RC Beams Strengthened with Carbon FRCM and Glass FRP](#)

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[Experimental analysis of small clay brick cylinders confined by bfrp grid under axial compression](#)

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## **Design codes and guidelines**

[Calibration of Reduction Factor for Concrete Columns Strengthened with Unidirectional Fiber-Reinforced Wrapping](#)

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[Fan-to-sheet failure mode of FRP anchors](#)

del Rey Castillo, E., Kanitkar, R., Smith S., Griffith, M.C., Ingham, J.M.

[CFRP Contribution in Reinforced Concrete Beams Strengthened in Shear with Anchored CFRP Strips](#)

Alotaibi, N.K., Shekarchi, W.A., Ghannoum, W.M., Jirsa, J.O.

## **Engineering applications**

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[Finite Element Analysis Modelling of bed scour in the FlexiArch™ bridge at Queens University Belfast](#)

Gyftaki, E., Taylor, S.E, Hamill, G., Rostagni, H., Robinson, D., McFarland, B.

[Analysis and Design of a Pedestrian Bridge with Decommissioned FRP Windblades and Concrete](#)

R. Suhail, J.F. Chen, R. Gentry, B. Taristro-Hart, Y. Xue and L. C. Bank