



Summary report of attendance to:

The 12th International Symposium on Fiber Reinforced Polymers for Reinforced Concrete Structures (FRPRCS-12) & The 5th Asia-Pacific Conference on Fiber Reinforced Polymers in Structures (APFIS-2015) Joint Conference in Nanjing, China, from the 14th to the 16th of December 2015.

As part of the agreement for the International Conference Travel Bursary awarded by the New Zealand Concrete Society to Enrique del Rey Castillo, PhD candidate at The University of Auckland.

To present the paper titled ‘Tensile Strength for FRP Straight Anchors in RC Structures’ as part of an on-going PhD project at the University of Auckland.



FRPRCS is the oldest international conference on the use of composite materials for strengthening and repair of reinforced concrete structures. The conference series started in 1993 and has since been running biannually. APFIS is the official IIFC conference of the Asia-Pacific region and has been organised since 2007. IIFC (International Institute for FRP in Construction) is a leading worldwide organisation on FRP materials on Construction, aiming to provide a forum for researchers and practitioners for sharing developments on the use of FRP materials in the Civil Engineering industry. In the year 2015 these two conferences were co-jointly organised by the Southeast University in Nanjing, China, together with IIFC, the International Institute for Urban Systems Engineering and the Local Unified Engineering Research Center for Basalt Fiber Production and Application Technology. A total of approximately 200 researchers and professionals from all over the world attended the conference, with a final number of 166 papers accepted and included in the technical programme. A substantial percentage of this number was related to the use of FRP on reinforced concrete structures, being the keynotes of especial interest.

Professor Thanasis Triantafillou advanced the work that his team is doing at the University of Patras, Greece, in collaboration with other universities around the world to develop Textile Reinforced Mortar jackets to retrofit concrete and masonry structures. I had the opportunity to meet him and talk with him about my current research, closely related to what his team is working on.

Charles Bakis is a distinguished professor at Penn State University, USA, and editor-in-chief of the Journal of Composites for Construction of the American Society of Civil Engineers, which is one of the most prestigious journal on FRP materials. He gave a state-of-the-art lecture of epoxy resins, their chemical behaviour and their role in the performance of bonded FRP systems, see an example of one of his slides in Figure 1. I had the good fortune of having him as chairman during my presentation and at the end of the session he approached me to ask some questions about my research and express his interest in receiving the progress of my work to the JCC for publication.

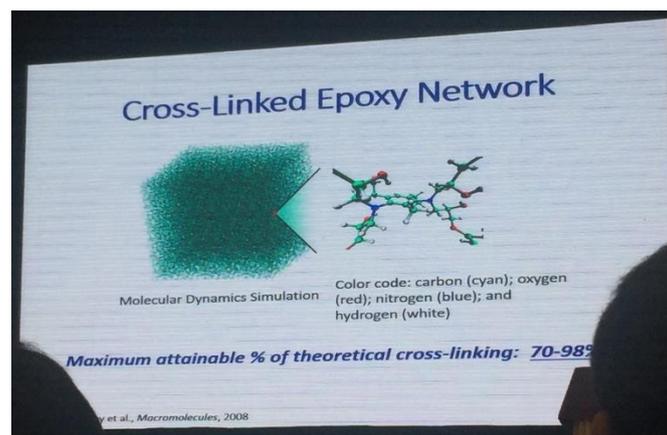


Figure 1: Slide by Prof. Bakis

Professor Yufei Wu from the RMIT University, Australia, presented advances on his efforts to develop constitutive models for FRP confined RC structures that will be very useful for me in the remainder of my studies. Professor Zhishen Wu from Southeast University, China, presented an interesting view on performance-based design of civil structures with FRP materials. Professor Tamon Ueda from Hokkaido University, Japan, explained a new approach to calculate the ultimate deformation of structural members strengthened with FRP.

Rudolf Seracino is a Professor and Head of the Department of Civil Engineering at North Carolina State University, USA, and co-chair of the ACI440 committee on FRP Strengthening. His lecture focused on the use of Digital Image Correlation (DIC) as a methodology for inspecting and monitoring bonded FRP systems. Because this is a method that I also use in my research I was able to learn how it is currently being used in other parts of the world. In addition, he emphasised the imperative need to investigate FRP anchors, which is the subject of my thesis. For this reason, I approached him to comment on the lack of papers related to FRP anchors at the conference and he expressed his interest in my paper and asked me to keep him updated. He also introduced me to Professor Scott Smith from Southern Cross University, Australia, who is the chair of the ACI440 subcommittee in charge of developing design guidelines for FRP anchors. Prof. Smith asked for my contact details in order to include me in the subcommittee, which has the immediate goal of compiling all the available information on FRP anchors, which is something that I have already done as part of the literature review for my thesis.

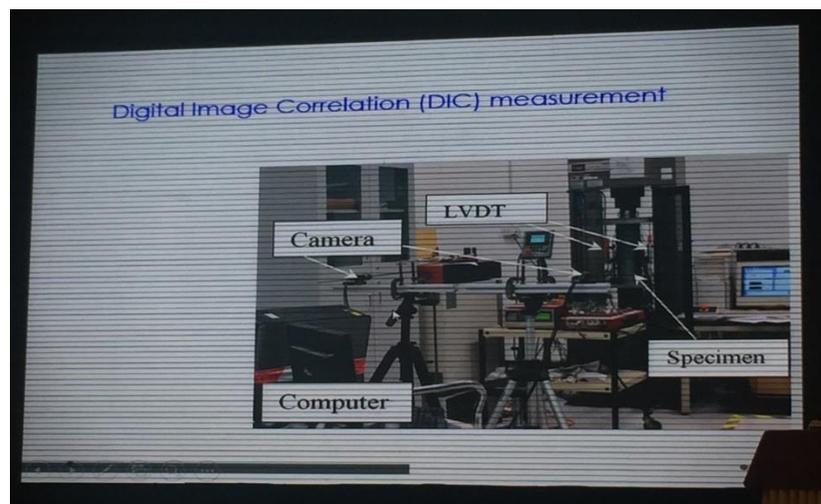


Figure 2: Slide by Prof. Seracino

In addition to these distinguished and experienced professors I met a lot of other researchers from all over the world, which helped me to have a better understanding of the current situation of FRP materials in general and of my research in particular. I realised that there is very little research on FRP anchors but that the use of DIC for measuring strains and displacements and monitoring FRP is increasing exponentially.

As a summary, it was an invaluable experience that helped to learn about what other teams of researchers are doing worldwide and to meet a few of the most important people in the field, together with fellow PhD candidates. I really appreciate the New Zealand Concrete Society for sponsoring me to attend this conference and providing me with the opportunity to present the research that I am undertaking at the University of Auckland.