Interview with Dr Fragkoulis Kanavaris, 2025 RILEM Colonnetti medallist

Dr Fragkoulis Kanavaris is ARUP's leading concrete materials expert within the Specialist Technology Analytics and Research unit, based in London, UK. Dr Kanavaris received his PhD from Queen's University Belfast (Northern Ireland) in 2017, with a thesis on "*Early age behaviour and cracking risk of concretes containing GGBS*". He has been a member of several RILEM TCs and is currently Deputy Chair of TC 287-CCS Early age and long-term crack width analysis in RC Structures. Dr Kanavaris also sits as expert in TAC. His research focuses on the development, understanding and evaluation of concrete materials and structures towards sustainability, serviceability, and durability. In 2025, he was awarded the RILEM Gustavo Colonnetti medal for the quality and impact of his research.

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Daniela Ciancio, RILEM Implementation Manager (RIM): Good morning Fragkoulis! A few years have passed by since we last talked (*Editor's note: this is the second interview that Dr Kanavaris sits with RILEM; the first one was published in 2022 and it is available here*)! It seems that a lot has happened since then. Where shall we start from? The endless list of the prizes that you have recently received? The impact of your work, as an engineer and as a researcher?

Dr Fragkoulis Kanavaris (Fragkoulis): Good morning! I wouldn't start from the prizes, as it is kind of uncomfortable and not the substance of the discussion! Let's start from my work at ARUP! Combining construction related and research related projects, I think I'm close to 400 projects to which I have contributed since 2018, when I joined ARUP. Of course, this contribution has not been full-time on a specific project. Normally there's a critical point in which my expertise is required, varying from a few hours to a few days, or even a few months or years. My role in ARUP is the appropriate framework where you can combine the latest advancements in technology and research, to actual projects. It is very motivating and also very rewarding, in terms of knowledge gathering, perception, holistic perspectives on how research, design, construction, and innovation implementation work.

RIM: Can you share with us some details of any of these projects? I read in your application, for instance, something related to converting waste London Clays from

excavation operations in the UK to usable calcined clay for structural concrete production.

Fragkoulis: Absolutely! Throughout my career, I have considered myself privileged enough to be surrounded by people smarter than me, and many of these people have been my mentors, friends, colleagues, and collaborators. This is very important when you might have a creative idea and you want to develop it: you have to discuss it with somebody who understands and fosters this kind of thinking. So…you brought up the London Clay example, starting back in 2018. At that time, it was not that hot of a topic, despite the magnificent efforts from Karen's group (*Editor's note: Prof. Karen Scrivener, EPFL, Switzerland*) and the subsequent formation of RILEM TC 282-CCL Calcined Clays as Supplementary Cementitious Materials. I remember it very vividly. We were in the early stages of this High Speed 2 project. We were having an informal meeting at the café area of ARUP, discussing and calculating the volumes of the excavated material and what to do with that. From my studies at Queens University, Belfast, I was aware of research on clay for alkali activated materials. So… I said "I have an idea…!". The initial reaction of my peers at the time was kind of "What the hell is this guy talking about?", you know… a recently recruited young guy, very energetic, just talking nonsense. I knew it was a quite ambitious idea, but I was determined to develop it further. So, I came back with some evidence, why I believed it was feasible, I did a preliminary analysis, before sharing more information with the project contractor, I even brought Karen in for an informal conversation…

RIM: Karen was your endorsement, as someone more senior than you!

Fragkoulis: Exactly! The EPFL group played a pivotal role in the initial success of the innovation and so did our expert collaborators from University of Leeds at later stages. But having endorsement at early stages was important also because this proposal was then to be escalated to senior levels in a major (multibillion) UK infrastructure application, so it needed good grounds and good recommendations. First, we convinced our senior experts in ARUP, then we worked closely with the project's major contractor (SCS Railways JV) to develop the innovation proposal … and then from that point onwards, the rest is history.

RIM: Wow! What a story! This prompts me to ask you another question. Greener usually means more expensive. How do you handle this matter with projects funded by money coming from taxpayers, or even harder with private projects? How hard is it to convince them to spend a little bit more, but for the benefit of the planet?

Fragkoulis: I think you hit the nail in the head! It's quite challenging to convince anyone in the construction world to dedicate funding for extra activities on sustainability, improvement of materials, design methods and so on. The way we do it is probably by

showing what is the best, what is the most efficient solution that combines also innovation. Some clients are quite keen to work under this framework, others for budget or other reasons are not. I also think that in ARUP we have required gravitas and expertise to be heard and direct industry-relevant innovation investment towards successful implementation. Back to that innovation project, the success was also coming from the multidisciplinary expertise of the people involved, like in a RILEM TC, including experts from RILEM TCs! A super constructed case, it cannot go wrong!

RIM: You define yourself a *non-conventional researcher or engineer*. What does it mean?

Fragkoulis: I think I do not like labels, like "you are a structural engineer, or you are a materials scientist, or you work in the industry, or you work in the academia". I feel that I'm spanning across different regions, very much like being both structural engineer and material scientist at the same time. Once a seed of curiosity is planted in you, right then, you cannot stop thinking on how to improve things, how to come up with ideas and creative ways to enhance methods and systems, and solve the problems that you're facing.

RIM: You are a *conventional curious person*, then! The next question is tricky. In 2022 you received the prestigious RAEng Young Engineer of the Year Award from the Royal Academy of Engineering: that award vs. the RILEM G. Colonnetti medal… what is more valuable for you?

Fragkoulis: This is a hard one! Both institutions have my outmost respect. The Royal Academy of Engineering is considered "the top of the top" in UK. I met very interesting and eminent people through this award. It is a very important recognition for the industry. But RILEM has always occupied a very special place in my heart! Since the beginning of my PhD studies, I was using the RILEM publications; then I started to get acquainted with some legendary RILEM members, meeting them in person, as well as working with them. It has been a superb experience. RILEM really encompasses the top people in science for materials and structures. This recognition actually means so much, because I know it comes from my scientific heroes in the field.

RIM: You received so many other prizes recently, and for this reason, you appeared a lot on social media, in interviews, etc… would you consider yourself an influential person?

Fragkoulis: What I would like to say is that I'm not aiming for glory. I'm aiming for influence. In my perspective, influence should target two groups: one is that of major players and institutions along the value chain in order to enable decisions and activities that would help with making the built environment more sustainable and improve our practises.

RIM: How confidence are you about this role of yours?

Fragkoulis: Every day is a learning experience but I would say pretty confident; among other things, these recognitions help.

RIM: So, you no longer need Karen Scrivener to endorse you?

Fragkoulis: Ah! Ah! Maybe but who would say "No" to such endorsement?! Anyway, the second group is made of young engineers and young scientists. This is perhaps even more important. As you progress throughout your career, you reach a point where you cannot do everything. You rely on the younger generations. It's not that I'm super old, but I see the flare and the potential of younger generations. Giving them that kind of inspiration and influence to excel is very important. We should not forget excellence. I feel we're living in a world in which knowing what you're talking about is a bit underrated. It is always beneficial to promote excellence, to promote how to do things right. So, younger groups of engineers and scientists would need to feel inspired to work towards a vision for a more sustainable built and natural environment.

RIM: How much are you involved in GLOBE?

Fragkoulis: It's something I should be more involved in, to be honest. I think it's an incredibly beneficial initiative and probably worth understanding how we can tie it up with other initiatives that are aimed to similar causes.

RIM: What are you going to talk about in Mendrisio (*Editor's note: the RILEM Gustavo Colonnetti medallists are invited to present a keynote lecture at the RILEM Spring Convention during the award ceremony*)?

Fragkoulis: I haven't really thought about that in detail, but what I want to do is to take the audience through a journey. As I mentioned previously, RILEM people occupy a very special place in my heart, so that ceremony will be my opportunity to talk in front of RILEM's legendary scientific figures. I had been so many times in the audience just listening to them. Now they will be "having to" listen to me! The journey will start from the initial stages of my research on Supplementary Cementitious Materials, then through the most state-of-the-art recommendations for crack control and concrete, and sustainability for concrete. And ultimately I will provide an outlook on what's next.

RIM: Great! Can't wait to see that. Thank you so much, Fragkoulis.

Fragkoulis: Thank you, and see you in Mendrisio!