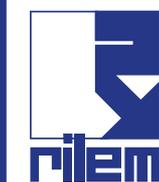




International Union  
of Laboratories and Experts  
in Construction Materials,  
Systems and Structures

**2019**

Annual  
Report



# About RILEM

The International Union of Laboratories and Experts in Construction Materials, Systems and Structures (RILEM, from the name in French – *Réunion Internationale des Laboratoires et Experts des Matériaux, systèmes de construction et ouvrages*) was founded in June 1947 in Paris, France, with the aim of promoting scientific cooperation and to stimulate new directions for research and applications, thus promoting excellence in construction worldwide.

This mission is achieved through the collaboration of leading experts in construction science and practice, including academics, researchers, industrialists, testing laboratories, and authorities.

---

## Become a member

If you are interested in joining RILEM, please consult our website [www.rilem.net](http://www.rilem.net) and become a member.

### Membership benefits include

- Participation in RILEM Technical Committees
- Access to the private web directories restricted to RILEM members and online version of the RILEM Directory of Members.
- Personal access after login to the journal *Materials and Structures*, RILEM Proceedings and Springer/Nature proceedings
- Reduced fees for RILEM events
- 30% discount on printed RILEM publications
- 20% discount on all Springer/Nature e-books
- Opportunity to publish selected articles as free OA paper in *Materials & Structures* and in *RILEM Technical Letters*

### Individual fees in 2020

Student Member	€ 25	Affiliate Member	€ 100
Senior Member	€ 375	Retired Member	€ 75

### Corporate fees in 2020

Institutional Member	€ 2 205	Industrial Member	€ 4 050
Associate Member	€ 1 165		

Note that special discounts of between 40% and 60% on membership fees apply depending on your country of residence. Please consult the website [membership.rilem.net](http://membership.rilem.net) for details.



# Editorial

● by RILEM Presidency

**W**e are pleased to present the RILEM Annual Report for 2019, which has been a significant year with changes of staff and officers at RILEM. The RILEM Convention in Rovinj, Croatia, was organised from 18–22 March 2019, by Dubravka Bjegović, Marijana Serdar and Ivana Banjad Pečur, in tranquil settings with a lot of warmth and joy. The highlights of the Convention included the lectures of the Gustavo Colonnetti medallists, Bahman Ghiassi and Claire E. White, which were especially honoured by the presence of Margherita, the youngest daughter of Professor Colonnetti. The March meetings were also an occasion to introduce two new members of the RILEM Team, Daniela Ciancio, who was appointed as the RILEM Implementation Manager, and Judith Hardy, who became the new RILEM Secretary General later in the year. At an elegant banquet during the Convention, we bid farewell to Pascale Ducornet, who retired after some 25 years at RILEM.

The 73rd RILEM Week in Nanjing, China, was hosted by the Honorary President Changwen Miao, in a modern and elegant convention centre designed by the late Zaha Hadid and overlooking the Yangtze River. Along with the high-quality lectures, it was a good opportunity for RILEM members to interact with budding scholars from China and elsewhere, especially those who had participated in the extensive doctoral courses that preceded the International Conference on Innovative Materials for Sustainable Civil Engineering. Augusto Cannone Falchetto, of the Technische Universität Braunschweig, was awarded the Robert L’Hermite Medal for his work on the fracture of asphalt over a range of temperatures.

At Nanjing, we welcomed Pietro Lura as the new Treasurer and Manager of RILEM Publications and said goodbye to Raoul François after a mandate of more than a decade as Treasurer. Karen Scrivener and Hans Beushausen took over as Chairpersons of the Educational and Development Activities Committees, respectively. The captaincy of RILEM’s flagship publication, the journal *Materials and Structures*, changed hands from Pietro Lura to John Provis, as the new Editor-in-Chief. There are also other updates in the membership of various



Nicolas Roussel, Ravindra Gettu,  
Johan Vyncke © Daniela Ciancio

committees as is customary every year due to the ending of mandates and new inductions. The services of the outgoing office-bearers are gratefully appreciated. In Nanjing the General Council approved the change in the official Association address to EMPA in Zurich. It was also decided not to increase the membership fees for 2020, and to continue to encourage more participation from younger researchers as well as those from emerging economies. You will see in this report that our membership is steadily increasing, nearing 1,500 this year, most of whom are active in the technical committees, organising our events, and writing reports and recommendations.

As can be expected, the heart of RILEM the headquarters remains in Paris. Since May 2019, Judith Hardy has been enthusiastically managing the affairs of the Association. She is ably assisted by Anne Griffoin, who coordinates the publications and communication, and Fanta Sylla, who recently joined us. We wish the new team a long and enjoyable tenure, dedicated to serving RILEM and its members.

We are looking forward to meeting RILEM members and other friends at the Guimarães Convention and the 2020 RILEM Week in Sheffield, and at other RILEM events during the coming year with lots of action already planned in TCs and by the Secretariat.

**Ravindra, Nicolas and Johan**



# Table of Contents

---

1	<b>Editorial</b> by RILEM Presidents
4	<b>2019 Key Numbers</b>
6	<b>73rd RILEM Annual Week</b> and International Conference on Innovative Materials for Sustainable Civil Engineering (IMSCE), Nanjing, China, 26–30 August 2019
9	<b>Doctoral course on “Concrete technology – state of the art and future”</b> , Nanjing, China, 21–25 August 2019
12	<b>RILEM Membership</b>
14	<b>Technical Committees</b>
18	<b>Technical and Educational Events</b>
22	<b>Publications</b>
22	<i>Materials and Structures</i>
24	<i>RILEM Technical Letters</i>
25	Proceedings, STARs & Recommendations
27	<b>50 Years of <i>Materials and Structures</i></b>
29	<b>RILEM Honours and Awards</b>
29	Gustavo Colonnetti Medal
29	Robert L’Hermite Medal
30	RILEM Fellows and Honorary Members
31	<b>RILEM Worldwide</b>
34	<b>Financial Statement for the Year 2018</b>
36	<b>International Partnerships</b>
37	<b>RILEM Officers and Staff</b>
40	<b>Upcoming Major Events for 2020 and Beyond</b>
40	RILEM Spring Convention 2020
40	RILEM Annual Week 2020
40	Future RILEM Events
??	<b>Did you know that...?</b>
41?	<b>About RILEM</b>
41?	<b>Become a Member</b>

# 2019 Key Numbers

---

## Membership



**1,474 members**  
(individual and corporate)



**68 countries**

---

## Activities



**36 Technical  
Committees**

## Co-sponsorship



**14 courses**



**26 events**

---

## Publications



**1 state-of-the-art report**



**8 proceedings**



**5 recommendations**

# Annual Week

Nanjing, China

# Spring Convention

Rovinj, Croatia



**289 participants**



**6 TC meetings**



**450 participants**



**13 TC meetings**

## Website



**77,599 viewers**  
**+29%**



**325,558 pages views**  
**+15%**

### Top 3 countries

- United States
- India
- France



**925 followers**  
**+23%**

### Top 3 countries

- India
- United States
- Brazil



**1,671 followers**  
**+62%**

### Top 3 countries

- France
- The Netherlands
- Switzerland



**264 subscribers**  
**+43%**

### Top 3 countries

- France
- United Kingdom
- Japan



**NEW!!!**

**RILEM is also on Twitter**  
**@RILEM1947**

# 73rd RILEM Annual Week and International Conference on Innovative Materials for Sustainable Civil Engineering (IMSCE) Nanjing, China, 26–30 August 2019

---

This year the 73rd RILEM Annual Week took place in Nanjing, China, and it was linked to the International Conference on Innovative Materials for Sustainable Civil Engineering (IMSCE). The full set of RILEM Standing Committees (DAC, TAC, EAC, Bureau and General Council), 6 TCs, 17 key-note speakers, and 289 delegates gathered at the 68-storey 5-star hotel in the Nanjing International Youth Cultural Centre designed by the renowned architect Zaha Hadid.

The first formal get-together of the event was the Welcome Reception on the evening of Monday 26 August 2019, even though many Rilem members initiated their activity the day before attending, some of the RILEM Standing Committees and the meetings of the Technical Committees (TMS, SHE, 270-CIM, 244-NUM, FTC and CEC). The Welcome Reception gave the IMSCE delegates and RILEM members the opportunity to greet old and new friends, network and try the fantastic local cuisine.

On Tuesday the opening ceremony was introduced by Prof. Changwen Miao, Southeast University and RILEM Honorary member, Prof. Guangjun Zhang, President of Southeast University and Prof. Ravindra Gettu, RILEM president. During that plenary session, the audience had the pleasure to listen to the presentation from Dr Augusto Cannone Falchetto, recipient of the 2019 Robert L’Hermite medal. Augusto offered an insight of his numerical model for asphalt mixture materials and his studies on size effect at low temperature. Prof. Karen Scrivener and Dr Robert Flatt were the speakers of the following key-note lecturers that morning. The rest of the day was organised with a second set of plenary presentations and the conference parallel sessions. In the evening the RILEM members gathered in one of the magnificent halls of the hotel to celebrate the Honorary Membership of Prof. Karen Scrivener and the RILEM Fellowships of Prof. Pietro Lura, Prof. Takafumi Noguchi, Prof. Mette Geiker and Prof. Manu Santhanam.

On Wed 28 August the TCs that terminated their activities in 2019 shared their work with the IMSCE delegates during a plenary session: Prof. Takafumi Noguchi for TC 255-FRS, Dr Alexandra Bertron for TC 253-MCI, Prof. Karen Scrivener for TC 267-TRM and Dr Lily Poulikakos for TC 252-CMB.

The RILEM General Council, chaired by RILEM President Prof. Ravindra Gettu, assembled to vote on the proposals discussed during the previous days by the RILEM Standing Committees. Prof. Nele De Belie, TAC chair, announced the closure of some TCs (251-SRT, 253-MCI, 255-FRS, 259-ISR, 263-EEC and

*73rd RILEM Annual Week and  
International Conference on  
Innovative Materials for Sustainable  
Civil Engineering participants  
© Southeast University, China*

*Prof. Changwen Miao  
© Doug Hooton*

*Some moments at the Welcome  
Reception of the 73rd RILEM  
Annual Week and IMSCE  
© Daniela Ciancio*



245-RTE) and the approval of new ones (CCS chaired by Dr Miguel Azenha, MPA chaired by Dr Guang Ye and MCC chaired by Prof. Barzin Mobasher). She also informed the audience that: 1) Prof. Daman Panesar will replace Prof. Barzin Mobasher as Convener of Cluster A; 2) Prof. Pietro Lura and Prof. Daman Panesar will be replaced as TAC experts by Dr Anya Vollpracht and Dr Daniel Oliveira; and 3) the jury of the Robert L'Hermite and Gustavo Colonnetti medals will have two new experts: Prof. Daman Panesar and Dr Arun Menon. Prof. Geert de Schutter, DAC chair, announced that DAC experts Prof. Tian Qian and Prof. Marco Di Prisco will be replaced by Prof. Jiaping Liu and Dr Lei Lei. The General Council was the occasion to thank Prof. de Schutter and Prof. Doug Hooton for their work as, respectively, DAC and EAC chair and welcome Dr Hans Beushausen and Prof. Scrivener in these roles. The attendees voted on the following items: 1) Prof. Pietro Lura to replace the current RILEM Treasurer Prof. Raoul François; 2) Prof. Pietro Lura to replace the current



Manager of RILEM Publications Mrs Pascale Ducornet; 3) Prof. John Provis to replace the current Editor-in-Chief for *Materials and Structures* Prof. Pietro Lura, 4) Dr Alexandra Bertron to replace current Editor-in-Chief for *RILEM Technical Letters* Dr Nicolas Roussel, 5) Dr Wolfram Schmidt to replace current Bureau member Dr Hans Beushausen, 6) Prof. John Provis to be RILEM Honorary President for 2020 and 7) Mrs Anne Griffoin to be appointed Head of Publications and Communication.

The conference dinner on Wednesday night was a tribute to Chinese cuisine and culture. The delegates were entertained by dancers, musicians and artists.

The last day of the conference, Thursday 29 August, hosted the “**China Engineering Construction Forum**”. All lectures in this session were given in Chinese, but non-Chinese speakers could follow the talks through ear-phones distributed at the venue’s entrance, transmitting a live English translation. The Forum was the first of its kind, i.e. a RILEM-sponsored Chinese event with speakers coming mainly from the Chinese industrial sector. It was a great occasion to learn from the Chinese chief engineers about the challenges and accomplishments of projects dealing with high-speed railway, sea bridges, nuclear power plants and other mainly concrete-made mega structures. In the afternoon of this final day, the last two plenary lecture sessions were dedicated to Prof. Sun Wei who passed away peacefully at her home in Nanjing, China, in February 2019. Her kindness and collegiality will be sadly missed.

The 74th RILEM Annual Week will take place in Sheffield, UK, from 31st August to 4th September 2020. The chair of this event, Prof. John Provis, is already setting sound foundations for this event: <https://www.sheffield.ac.uk/materials/rilem2020>.

.....

*Prof. Wei Sun with some students*  
© Southeast University, China

*Prof. Changwen Miao*  
© Doug Hooton

*RILEM members having a drink at the conference hotel after a full day of meetings* © Doug Hooton



# Doctoral course on “Concrete technology – state of the art and future” Nanjing, China, 21–25 August 2019

---



Photo of participants and instructors taken at the State Key Laboratory of High-Performance Civil Engineering Materials  
© IMSCE 2019

**A** total of 160 students and 22 instructors from several parts of the world took part in this event.

The event was scheduled in five parallel course segments covering the following topics:

- a.** *Workability and Admixtures*
- b.** *Hydration and Microstructure*
- c.** *Volume Change and Cracking*
- d.** *Durability*
- e.** *Multi-Scale Modelling*

An additional one-day “session” on *Supplementary Cementitious Materials* was also offered as a joint activity. The event was hosted by the State Key Laboratory of High-Performance Civil Engineering Materials, Nanjing, China.

The course provided an opportunity for the participants to become familiar with state-of-the-art of concrete technology. In addition to frontal lectures the course involved a number of different teaching elements such as preparatory readings, personal presentations, hands-on laboratory exercises, a poster competition, group work and “conference” presentations. Furthermore, the



course included a cultural study tour and social activities to promote a stimulating study atmosphere. All teaching activities were in English.

The winners of the RILEM-sponsored poster competition were offered a lump sum prize to cover their travel costs and free registration at the International Conference on innovative Materials for Sustainable Civil Engineering (IMSCE), held in Nanjing the week after the doctoral course. They were also given the opportunity to meet the course organisers and the RILEM presidency at a private event.



The course was financially supported by Jiangsu Sobute New Materials Co., Ltd and the State Key Laboratory of High Performance Civil Engineering Materials. Scientific approval, so-called scientific sponsorship, of the full doctoral course was given by Southeast University, The Chinese Academy of Engineering, The National Natural Science Foundation of China and the Educational Activities Committee of RILEM. Specific scientific sponsorship for the course segment on *Volume Change and Cracking* was given by the RILEM Technical Committee on “Controlled expansion of concrete by adding MgO-based expansive agents taking the combined influence of composition and size of concrete elements into consideration” (TC CEC).

*Erik Schlangen instructs in mesoscale computer modelling.*  
© Ole M. Jensen

*Ole Mejlhede Jensen presents a small experiment during classroom teaching on Volume Change and Cracking.* © Ole M. Jensen

Similar doctoral courses are already planned for Israel 2020 and Mexico 2021, and it is expected that another course on a related topic will be organised in Nanjing within the next four years.





*Nicolas Roussel explains the rheological properties of fresh concrete.* © Ole M. Jensen



*Konstantin Kovler demonstrates how mechanical properties of concrete can be measured by ultrasound.* © Ole M. Jensen



*Participants and instructors on the cultural study tour in Nanjing.* © Daniela Ciancio



*Posters exhibition.* © Ole M. Jensen



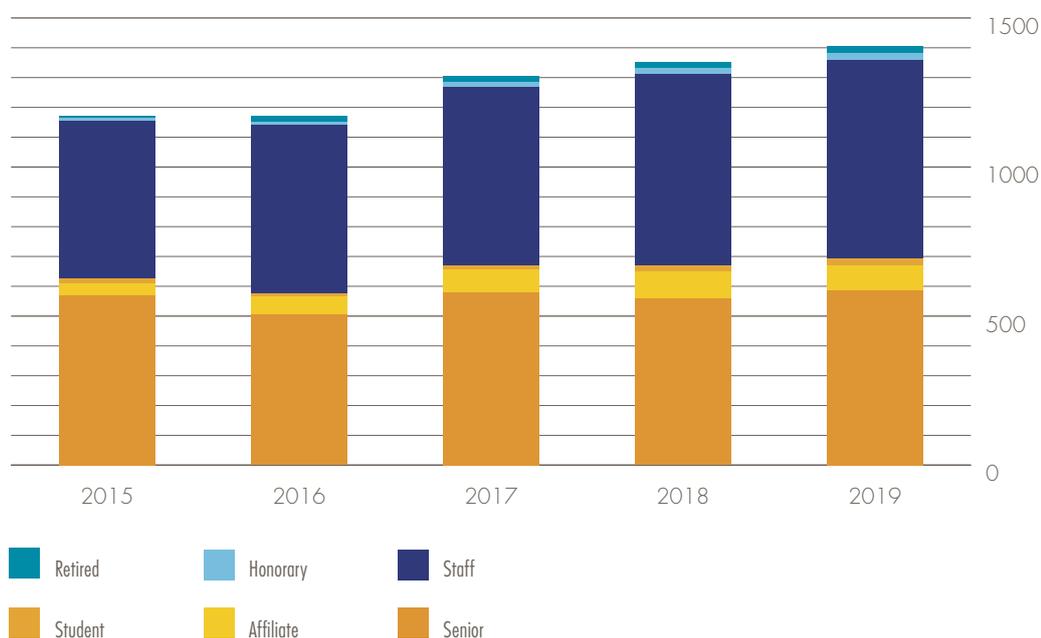
*RILEM President, Prof. Ravindra Gettu, having breakfast with the poster competition awardees.* © Daniela Ciancio

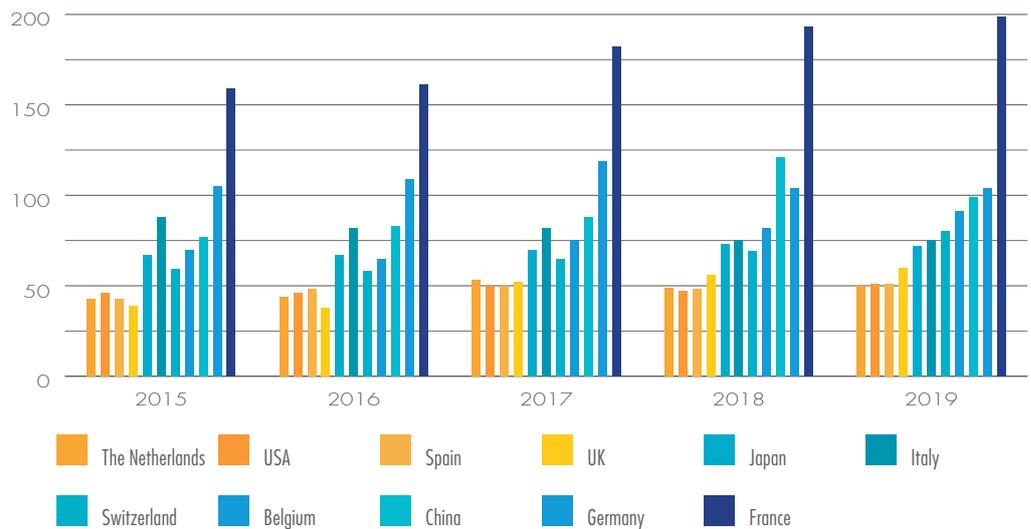


*Poster competition awardees and course organisers posing for a picture together with the RILEM team in Nanjing.* © Daniela Ciancio

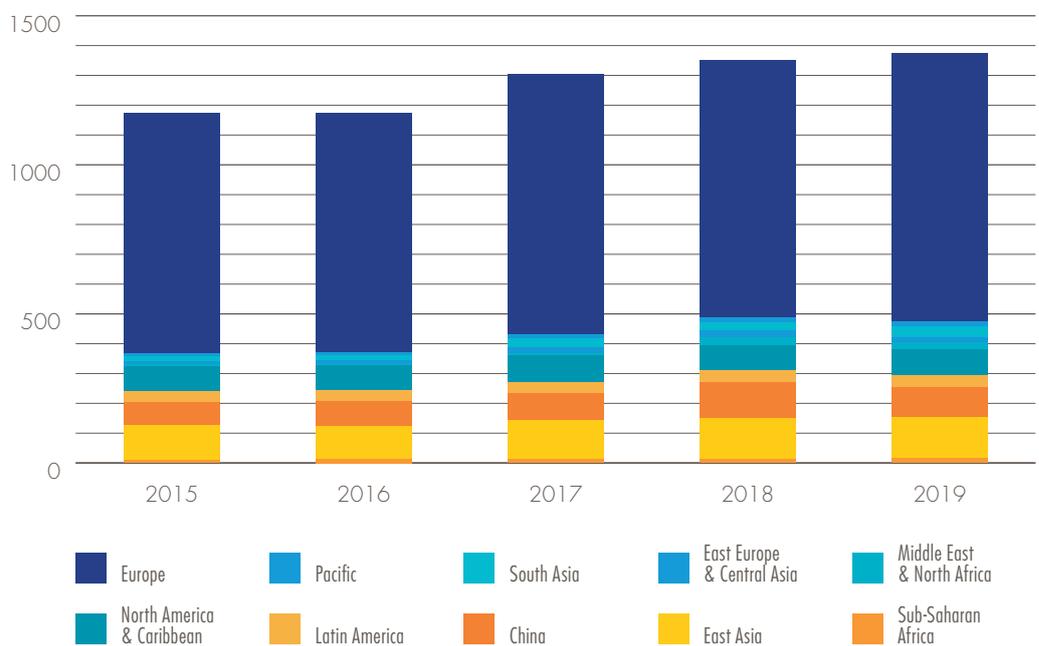
# RILEM Membership

The number of individual RILEM members has continued to increase over the last five years, from a total of 1,173 members in 2015 to 1,374 members in 2019. The most populated sub-groups remain the individual staff of corporate members (in dark blue) and the senior members (in dark orange). It is good to see that the affiliate members (in yellow), i.e. those scientists and researchers under the age of 35, have grown in the last years. The honorary (in light blue) and retired (in turquoise) members represent a small proportion of overall membership. The students (in orange) are the paying ones. The graph does not show the students that attended a RILEM EAC course and that are currently using the three-year free RILEM membership.





Also in 2019, France is the country with the highest number of RILEM members (199), as it has been in the last years. China lost its 2018 second place and it is now on the third position (100), leaving the second position to Germany (104). The overall number of members in each country has not significantly changed in the last five years, except for Italy that occupied the third position in 2015 (with 88 members) and it now is in the sixth position (with 75 members), and the United Kingdom, Belgium and Switzerland whose members significantly increased between 2015 and 2019.

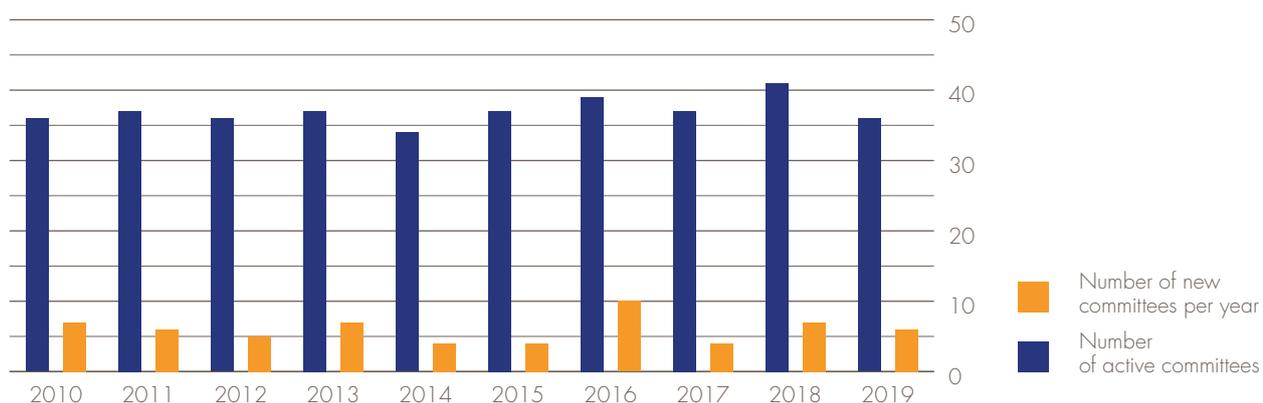


Amongst the 10 geographical areas that RILEM established some years ago, in 2019 Europe saw the highest number of members (898), followed by East Asia (140) and China (100). The number of RILEM members has remained quite stable in the last five years in the North America region (around 84), Latin America (around 40), Sub-Sharan Africa (around 15) and the Pacific (around 15). It has significantly increased in the Middle East and North Africa (from 6 in 2015 to 23 in 2019) and in East Europe and Central Asia (from 10 in 2015 to 20 in 2019).

# Technical Committees

Within RILEM, Technical Committees are the heart of the organisation, and the backbone of action. They are highly dynamic and have a limited functioning life of five to seven years. Every year, several technical committees are closed after successfully reaching their goals, and new TCs are initiated. During the last decade, the number of active Technical Committees fluctuated at around 35, and in 2019 this number reached 36 active committees.

## Technical Committees



Every year, four to five new technical committees are created. The full list of active TCs and details about their work can be consulted at [tc.rilem.net](http://tc.rilem.net)

### The following six new committees were approved in 2019

**Cluster B.** Transport and Deterioration Mechanisms (Convener: Esperanza Menendez Mendez)

**TC GDP:** *Test Methods for Gas Diffusion in Porous Media*, chaired by Bruno Huet

**Cluster C.** Structural Performance and Design (Convener: Giovanni Plizzari)

**TC CCS:** *Early Age and Long-Term Crack Width Analysis in RC Structures*, chaired by Miguel Azenha

**TC MCC:** *Mechanical Characterization and Structural design of Textile Reinforced Concrete*, chaired by Barzin Mobasher

**TC MPA:** *Mechanical Properties of Alkali-Activated Concrete*, chaired by Guang Ye

**Cluster D.** Service Life and Environmental Impact Assessment  
(Convener: Alexandra Bertron)  
**TC DCM: Long-Term Durability of Structural Concretes in Marine Exposure Conditions**, chaired by Kefei Li

**Cluster E.** Masonry, Timber and Cultural Heritage (Convener: Enrico Sassoni)  
**TC IMC: Durability of Inorganic Matrix Composites used for Strengthening of Masonry Constructions**, chaired by Antonietta Aiello

## **We closed 10 Technical Committees in 2019 and these TCs have successfully terminated their mission by publishing recommendations and/or STARS**

**TC 244-NUM** Numerical Modelling of Cement-Based Materials, chaired by Klaas Van Breugel  
*STAR to be published in 2020*

**TC 245-RTE** Reinforcement of Timber Elements in Existing Structures, chaired by Jorge Branco  
*STAR to be published in 2020*

**TC 247-DTA** Durability Testing of Alkali-Activated Materials, chaired by John Provis  
*Several papers published or to be published in 2020 in Materials and Structures*

**TC 249-ISC** Non-Destructive In Situ Strength Assessment of Concrete, chaired by Denys Breyse  
*Recommendation on non-destructive in situ strength assessment of concrete published in Materials and Structures and a STAR to be published in 2020*

**TC 250-CSM** Composites for Sustainable Strengthening of Masonry, chaired by Gianmarco De Felice  
*Recommendation Test method for Textile Reinforced Mortar to substrate bond characterisation published in Materials and Structures*

**TC 251-SRT** Sulfate Resistance Testing, chaired by Véronique Baroughel-Bouny  
*STAR and recommendation to be published in 2020*

**TC 253-MCI** Microorganisms-Cementitious Materials Interactions, chaired by Alexandra Bertron  
*STAR and recommendation to be published in 2020*

**TC 254-CMS** Thermal Cracking of Massive Concrete Structures, chaired by Eduardo Fairbairn  
*STAR published*

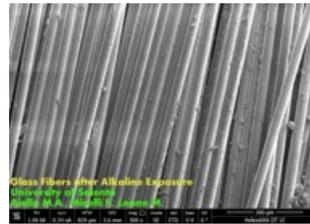
**TC 255-FRS** Fire Resistance of Concrete Structures Repaired with Polymer Cement Mortar, chaired by Takafumi Noguchi  
*STAR and recommendation to be published in 2020*

**TC 259-ISR** Prognosis of Deterioration and Loss of Serviceability in Structures affected by Alkali-Silica Reactions, chaired by Victor Saouma  
*STAR to be published in 2020*

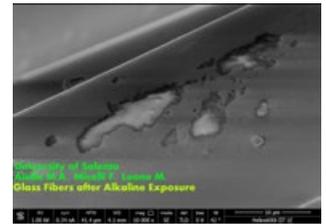
**TC 263-EEC** Environmental Evaluation of Concrete Structures Toward Sustainable Construction, chaired by Amnon Katz



Meeting of RILEM TC 281-CCC in Prague, Czech Republic in September 2019 © TC 281-CCC



Glass Fibers after Alkaline Exposure University of Salerno



University of Salerno



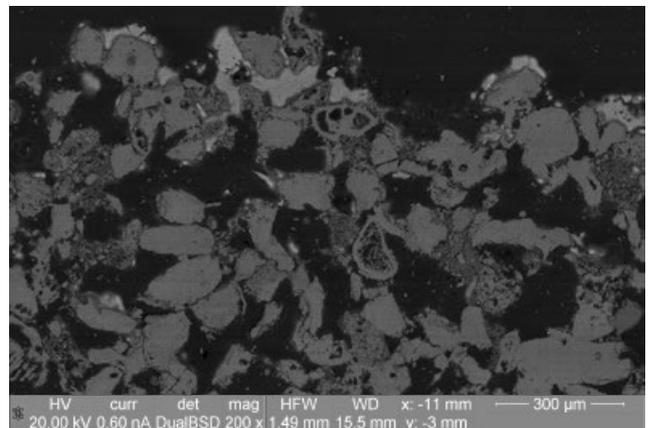
© TC IMC

### Testing air content of lime-based mortars

TC 277-LHS - Specifications for testing and evaluation of lime-based repair materials for historic structures © Ioanna Papayianni



Kick off meeting of RILEM TC AMC in Nairobi, Kenya in January 2019 © TC AMC



HV curr det mag HFW WD x: -11 mm 300 µm 20.00 kV 0.60 nA DualBSD 200 x 1.49 mm 15.5 mm y: -3 mm

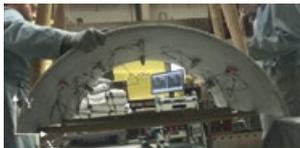


TC 271-ASC - SEM image of a cross section of Maastricht limestone after salt contamination (NaCl) and drying © Asele-Maria Aguilar Sanchez

TC 271-ASC - Determination of liquid permeability by CT scanner at Ghent University © Hannelore Derluyn

TRC shell 1 m x 1 m, cast into rigid mold. 3D glass textile reinforcement used. Fined-gained cement poured to cover the textiles. Shell thickness 22 mm. Incremental loading by manually placing distributed load at shell top plane.

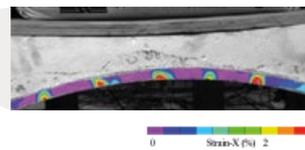
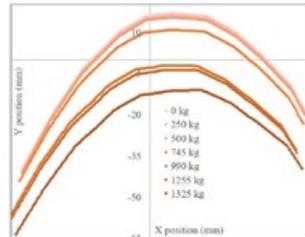
DIC displacement analysis measures the deflection and shape deformation of the shell under incremental loading. DIC shows that the TRC shell can deflect up to 30 mm



8 sensors mounted at bottom plane; 3D AE source localization

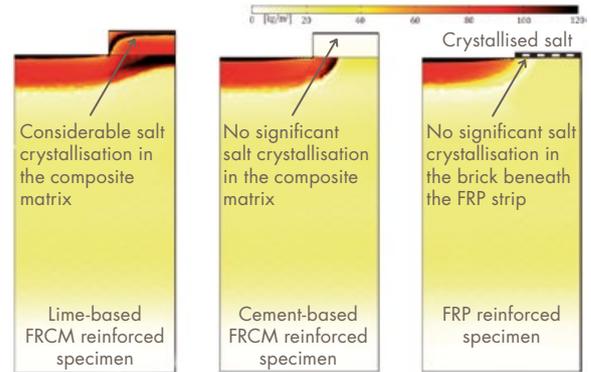


3D DIC monitoring of shell face to track cracks on cement. Pair of high resolution cameras face the middle zone of the TRC shell, where crackings develops. Fine & random black-white speckle pattern covers the TRC face.



Cracks as depicted by DIC strain field analysis at the shell face. Red-highlighted sections mark the fracture zones surrounding the open cracks, purple sections indicate the TRC zones that remain intact.

© Eleni Tsangouri and TC 269-IAM

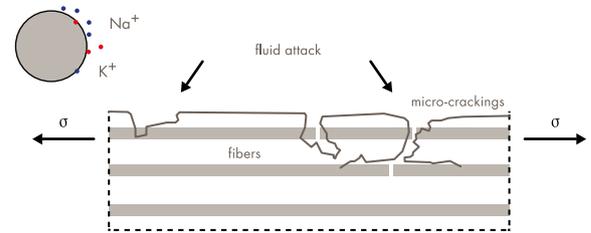


## Modelling environmental ageing in masonry strengthened with composites

University of Bologna

by S. de Miranda, A. M. d'Altri, G. Castellazzi

© TC IMC



## Alkaline attack on GFRP

University of Salento

M. A. Ariello, F. Micelli, M. Leone

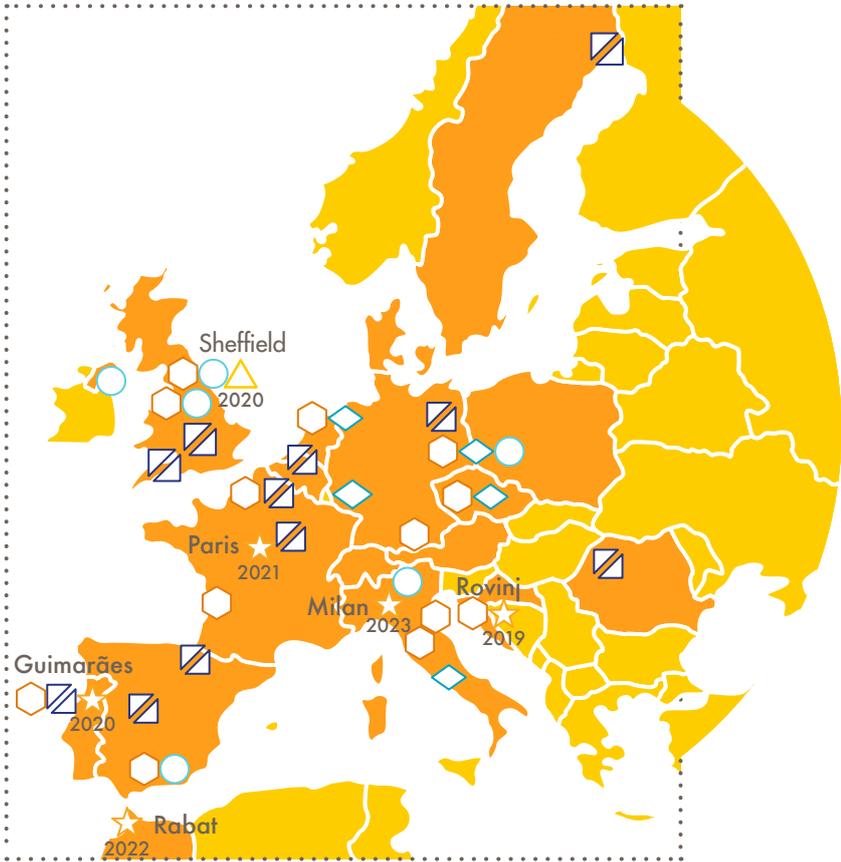
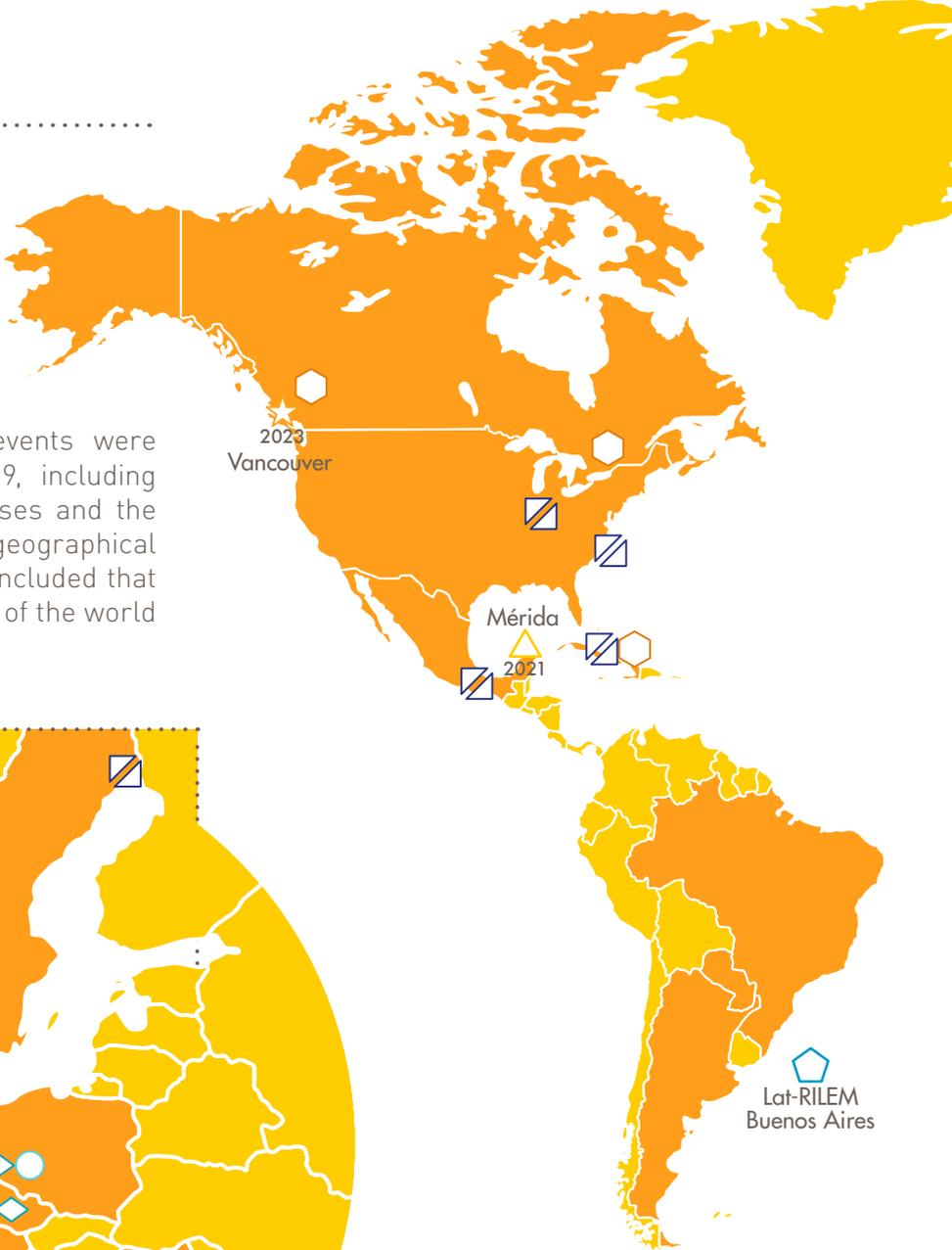
© TC IMC

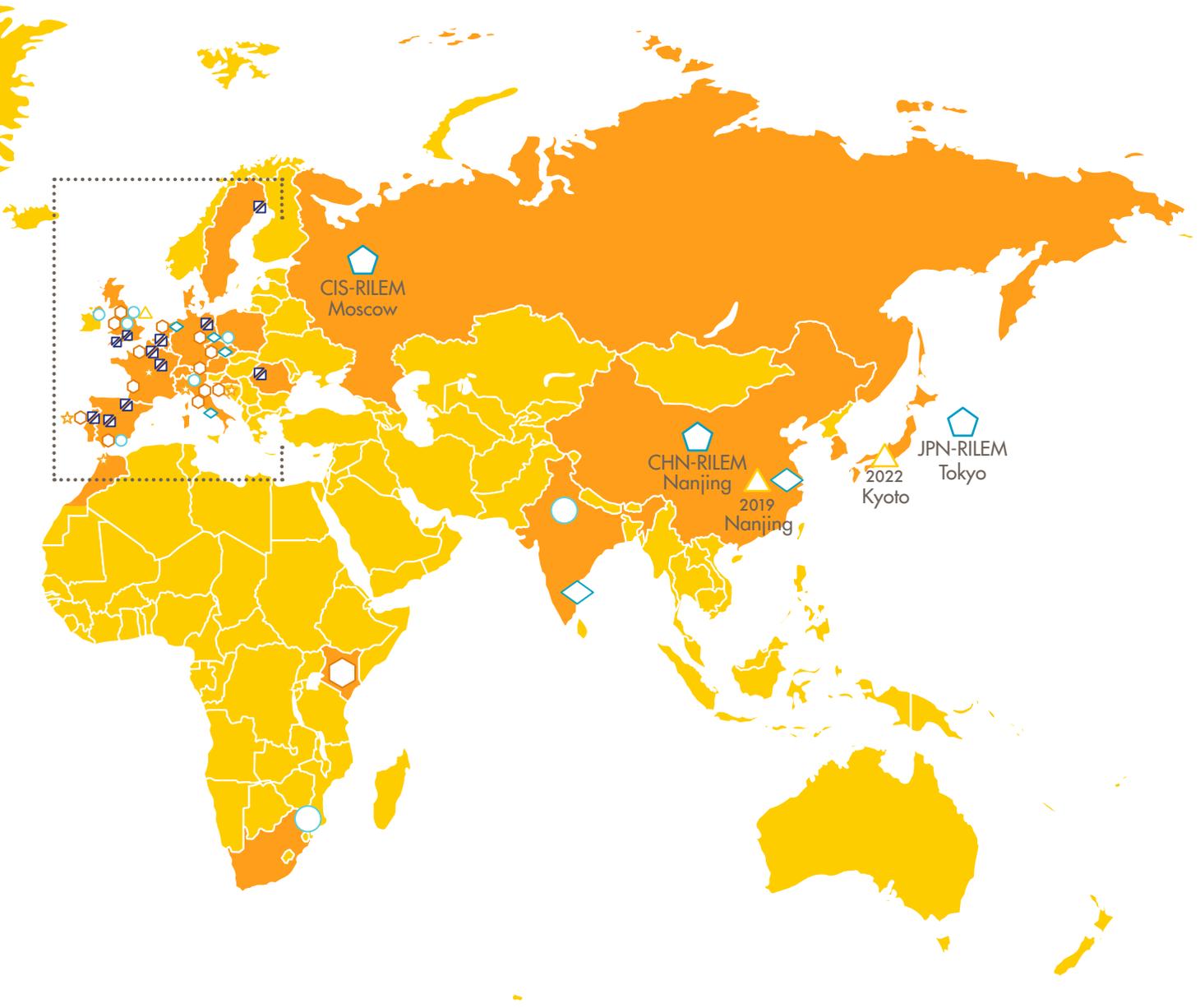


The 12th meeting of TC 256-SPF in Sheffield, UK in September 2019 © Shan-Shan Huang, The University of Sheffield

# Technical and Educational Events

Many technical and educational events were again organised worldwide in 2019, including conferences, workshops, PhD courses and the like. The following map shows the geographical spread of the activities. It can be concluded that RILEM is reaching out to all corners of the world bringing together many people!





## RILEM Events 2020

- |                                                                                     |                         |                                                                                     |                             |
|-------------------------------------------------------------------------------------|-------------------------|-------------------------------------------------------------------------------------|-----------------------------|
|  | Co-sponsored event      |  | Technical Committee meeting |
|  | Educational activity    |  | Spring Convention           |
|  | RILEM event             |  | RILEM Annual Week           |
|  | Regional/National Group |                                                                                     |                             |

**The EAC committee met in Nanjing in August 2019.** A template for reporting on EAC-sponsored courses was approved. Discussion continued on new EAC-sponsored Professional Development courses, in addition to current PhD courses. For the Sheffield RILEM week in 2020, EAC will try to conduct Professional Development course and get buy-in from local industry organisations such as the UK Institute of Concrete Technology to help advertise well in advance to industry professionals. EAC will also consider developing RILEM Webinars that could be set up once every two or three months, possibly by a specific TC, and also possibly recording the TC Chair in a video. Ideas on how to better engage students from developing countries were also discussed.

Karen Scrivener was approved as the new Chair of EAC, replacing Doug Hooton. It was also the last meeting for Prof. Ole Jensen, who was the inaugural Chair of EAC.

Several new and continuing PhD Course Series were held in 2019. These included:

Title	Location	2019 Dates	Contact
Computation Methods for Building Physics and Construction Materials	Darmstadt, Germany	Week of April 8	Eduard Koenders
Corrosion Science and Corrosion Control for Infrastructure	Delft, NL	Week of April 8	D. Koleva, R. Polder
Concrete Microscopy Course, CMC	Delft, NL	Week of June 4	Oguzhan Copuroglu
Summer School, Mineral-Bonded Composites for Enhanced Structural Impact Safety	Dresden, Germany	Week of July 14	Viktor Mechtcherine
Modelling of Localised Inelastic Deformation	Prague, CZ	Week of Sept. 9	Milan Jirasek
Corrosion Science and Corrosion Control for Infrastructure	Delft, NL	Week of Oct. 21	D. Koleva, R. Polder
17th SIIV International Summer School: Climatic Changes and Perspective of Road Infrastructures	San Marino	Week of Sept. 16	Andrea Grilli
Advanced Concrete Technology Course	Chennai, India	Week of Nov. 18	Manu Santhanam



*Sixth International Workshop on Concrete Spalling Due to Fire Exposure in Sheffield, UK © Shan-Shan Huang, The University of Sheffield*

*Concrete spalling during a fire test © Ian Burgess, The University of Sheffield*

Also, **five new EAC-sponsored courses were run 21–25 August, 2019**, the week prior to the 73rd RILEM Annual week in Nanjing on the following topics: Workability and Admixtures; Hydration and Microstructure; Shrinkage, Expansion and Cracking; Durability; Modelling and Simulation; and Supplementary Cementitious Materials. All of these courses were sponsored and held at the Sobute New Materials Co.'s research centre in Nanjing. In addition to the individual course segments and laboratory tests, some plenary lectures were common to all five courses. Attendance at these courses was well in excess of one hundred.

A one-day course on Supplementary Cementitious Materials was also offered in Nanjing by Karen Scrivener. A similar one-day course was also given prior to the International Congress on Cement Chemistry in Prague in September.

*Corrosion Science & Corrosion Control for Infrastructure (CSC2i), Delft, The Netherlands in October 2019 © TU Delft*

*Roberto Torrent explaining a permeability test in the laboratory © Doug Hooton*

*Corrosion Science & Corrosion Control for Infrastructure (CSC2i), Delft, The Netherlands in October 2019 © TU Delft*

*Students on tour after the 17<sup>th</sup> SIIV International Summer School: Climatic Changes and Perspective of Road Infrastructures in San Marino in September 2019 © Andrea Grilli*

*Advanced Concrete Technology Course in Chennai, India in November 2019 © IIT Madras*

*Milan Jirásek, Advanced course on Modelling of Localised Inelastic Deformation in Prague, Czech Republic in September 2019 © Daniela Ciancio*





# Publications

---

Of utmost importance for RILEM is the dissemination of information. This is facilitated through different channels such as the flagship publication of RILEM, the journal *Materials and Structures*, the open access journal *RILEM Technical Letters*, conference proceedings, STAR reports, technical reports, and RILEM Recommendations.

## **Materials and Structures**

In 2019 important changes took place in the editorial board of *Materials and Structures*. Prof. Pietro Lura from Empa, Switzerland, stepped down after four years of service as Editor-in-Chief. During his mandate, significant developments in the journal's publishing policies took place. In particular, the publication backlog was removed and the journal switched from issue-based publishing to a continuous article publication scheme. These steps, together with the dedicated service of the Associate Editors, voluntary reviewers and of the whole editorial team led to a considerable reduction of decision and publication times. Articles appear online in their final form on average only eight days after acceptance and the average time from submission to first decision is only 27 days. Currently (December 2019), no pending papers are older than eight months. Prof. John Provis from the University of Sheffield, UK, active as the Associate Editor since 2014, was appointed during the RILEM Annual Week 2019 as the new Editor-in-Chief. With the change of the Editor-in-Chief, the editorial management previously held by Dr Mateusz Wyrzykowski from Empa, Switzerland, was transferred to the University of Sheffield, UK.

### **Published articles and impact of the journal**

The increase in the number of submissions observed since 2012, appears to have flattened out in the last year. Until December 2019 the total number of submissions was about 1,400, slightly less than in the same period in 2018. The number of published papers is expected to remain at a level of 150–200 in the coming years. 117 papers have been published in volume 52 (2019) until December 2019.

The acceptance rate decreased from 0.18 for papers submitted in 2015 to about 0.10 for those from 2018; a similar rate is expected for the papers submitted in 2019.

The impact factor 2018 is 2.548 (19/63 rank in Construction & Building Technology, 41/132 rank in Civil Engineering). The negative effect on the IF due to publishing a large number of papers from the backlog in 2016 appears to be levelling out (IF 2017 was 2.271, IF 2016 was 2.607 and IF 2015 was 2.453). The number of citations has been steadily increasing since 2015 but will likely stabilise in the next years.

## Platform for dissemination of the RILEM TCs work

As in previous years, *Materials and Structures* served as an important platform for the dissemination of the outcomes of RILEM Technical Committees. In 2019, five official RILEM TC Recommendations (from TC 243-SGM, TC 237-SIB, TC 260-RSC, TC 252-CBM and TC 249-ISC) and three TC reports (from TC 247-DTA, TC 252-CBM and TC 262-SCI) were published.

## Outstanding Papers and Best Reviewer awards

As in previous years, the Editorial Board awarded the authors of the most scientifically interesting and most innovative papers with the Outstanding Paper Award for the best papers published in 2019.

Another important RILEM Award related to the journal is the Best Reviewer Award, granted annually by the Editorial Board to our best volunteer reviewers, which guarantee the high scientific quality of the published articles and a fast review process. In the year 2019, the award was granted for the years 2018 and 2019.

### List of Outstanding Papers

- **F. Lo Monte, R. Felicetti and C. Rossino, 2019.** Fire spalling sensitivity of high-performance concrete in heated slabs under biaxial compressive loading.
- **M. Rasoolinejad, S. Rahimi-Aghdam, and Z. P. Bazant, 2019.** Prediction of autogenous shrinkage in concrete from material composition or strength calibrated by a large database, as update to model B4.
- **Y. Ghasemi, M. Emborg, and A. Cwirzen, 2019.** Effect of water film thickness on the flow in conventional mortars and concrete.
- **D. Zhang, D. Birgisson, X. Luo, and I. Onifade, 2019.** A new short-term aging model for asphalt binders based on rheological activation energy.
- **L. Qing, K. Yu, R. Mu and J.P. Forth, 2019.** Uniaxial tensile behavior of aligned steel fibre reinforced cementitious composites.
- **N.V. Silva, S.C. Angulo, A.S. Barboza, D.A. Lange and L.M. Tavares, 2019.** Improved method to measure the strength and elastic modulus of single aggregate particles.
- **J. Si, Y. Li, and X. Yu, 2019.** Curing behavior and mechanical properties of an eco-friendly cold-mixed epoxy asphalt.
- **M. Docevska, G. Markovski and P. Mark, 2019.** Experimental investigation on the reversibility of concrete creep under repeating loads.
- **F. Bernachy-Barbe, 2019.** A data analysis procedure for phase identification in nanoindentation results of cementitious materials.
- **D. Jansen, Z. Lu, X.M. Kong, J. Pakusch, E. Jahns, F. Deschner and C. Schmidtke, 2019.** The influence of the glass transition temperature (T<sub>g</sub>) of polymers on early OPC hydration: a complete study of the heat flow, phase evolution, and pore solution chemistry.

### Materials and Structures Best Reviewers 2018

- **Flora Faleschini**, University of Padua, Italy
- **Andrea Graziani**, Università Politecnica delle Marche, Italy
- **Lik Lam**, Redland Precast Concrete Products, China
- **Giovanni Metelli**, University of Brescia, Italy
- **Laurent Porot**, Kraton Corporation, The Netherlands
- **Nader Tabatabaee**, Sharif University of Technology, Iran
- **Gideon van Zijl**, Stellenbosch University, South Africa

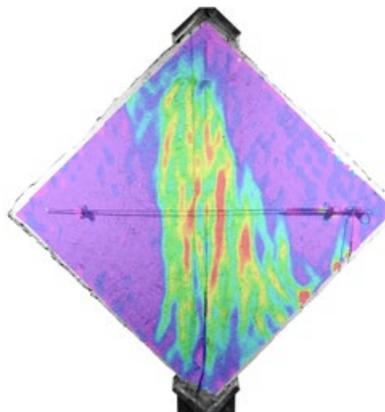
### Materials and Structures Best Reviewers 2019

- **Hua Dong**, TU Delft, The Netherlands
- **Daniele Ferretti**, University of Parma, Italy
- **Pietro Gambarova**, Politecnico di Milano, Italy
- **Bernhard Pichler**, TU Vienna, Austria
- **Damien Rangeard**, INSA Rennes, France
- **Didier Snoeck**, Ghent University, Belgium
- **Yu Yan**, University of Florida, USA

Diagonal shear test of a masonry wall made with historical bricks and strengthened with composite reinforced mortar (CRM)  
© Tommaso D'Antino



Crack pattern of a similar wall, though bigger, captured using the digital image correlation (DIC) method  
© Tommaso D'Antino



## RILEM Technical Letters

Since its creation in 2016 and with four volumes published, *RILEM Technical Letters* has established a strong position as a journal, reporting on the most innovative research in the field of building materials and structures, providing immediate open access to readers around the world. In addition to publishing short letters reporting groundbreaking research findings, it has also served as a platform for research papers strongly related to the RILEM community. Like in previous years, in 2019 the awardees of different RILEM scientific awards (e.g. the Colonnetti Medal or RILEM Best Student Poster) submitted their invited papers.

The novelty and high scientific quality of the papers together with the benefits offered by the open access result in a very high visibility for the journal and the works it publishes. The papers from the last two closed volumes (2017 and 2018) have been downloaded some five hundred times on average until the end of 2019. The high quality and visibility correlates also with the high numbers of citations. The papers published in the last two closed volumes (2017 and 2018) were cited on average four times each in those years. We put all our efforts into improving the visibility and status of the journal. *RILEM Technical Letters* is indexed in Directory of Open Access Journals (DOAJ) and is currently under evaluation to be included in Scopus and Web of Science indexes.

In 2019, important changes in the editorial board took place. Prof. Nicolas Roussel, the founding editor-in-chief stepped down to assume his new duties as the vice president of RILEM. We still count on his support for the journal as associate editor in the coming years. During the RILEM Annual Week 2019 Prof. Alexandra Bertron, who had been active as an associate editor since the start of the journal, was appointed the new editor-in-chief. Prof. Pietro Lura, deputy editor-in-chief was replaced in this role by Prof. John Provis, the new editor-in-chief of *Materials and Structures*. We are also happy to welcome Dr Wolfram Schmidt as a new associate editor.

We encourage all RILEM members to submit their interesting scientific contributions to the journal, free of charge. Interested authors are welcome to submit the proposed topics to the editor-in-chief, Prof. Alexandra Bertron, or to the members of the editorial board. Please visit the journal at [letters.rilem.net](http://letters.rilem.net).

# Proceedings, STARs & Recommendations

Besides the two journals, RILEM also publishes proceedings, state-of-the-art reports (STAR), and recommendations.

2019 has been a successful year in this respect, with eight proceedings, one STAR, and five Recommendations.

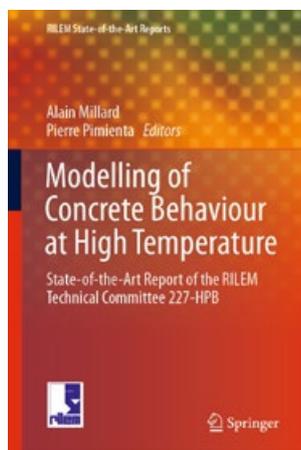
## Proceedings published in 2019

### Published by RILEM Publications:

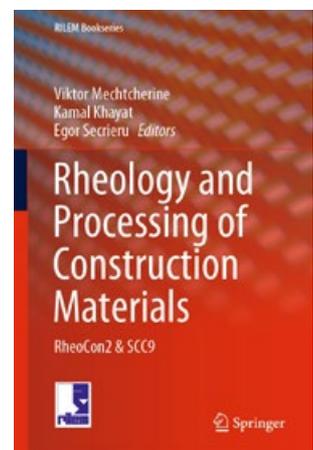
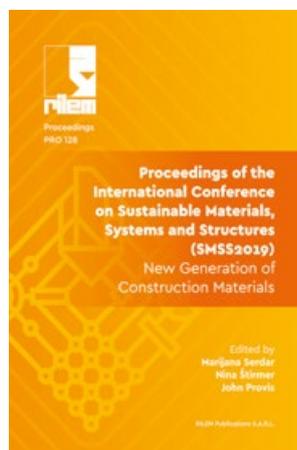
- **PRO 128 SMSS2019 - International Conference on Sustainable Materials, Systems and Structures (2019) 6 volumes:** **vol. 1:** New Generation of Construction Materials, Eds. Marijana Serdar, Nina Štirmer, John Provis; **vol. 2:** Energy Efficient Building Design and Legislation, Eds. Marina Bagarić, Ivana Banjad Pečur, Hartwig M. Kunzel; **vol. 3:** Durability, Monitoring and Repair of Structures, Eds. Ana Baričević, Marija Jelčić Rukavina, Domagoj Damjanović, Maurizio Guadagnini; **vol. 4:** Challenges in Design and Management of Structures, Eds. Ana Mandić Ivanković, Marija Kušter Marić, Alfred Strauss, Tomislav Kišiček; **vol.5:** Novel Methods for Characterization of Materials and Structures, Eds. Ivan Gabrijel, Christian Grosse, Marijan Skazlić; PhD Symposium, Eds. Ivana Carević, Stjepan Lakušić, Dirk Schlicke
- **PRO 130 5th Historic Mortars Conference (2019);** Eds. José Ignacio Álvarez, José María Fernández, Íñigo Navarro, Adrián Durán, Rafael Sirera
- **PRO 131 (online version): 3rd International Conference on Bio-Based Building Materials (ICBBM2019);** Eds. Mohammed Sonebi, Sofiane Amziane, Jonathan Page
- **PRO 132 IRWRMC'18 - International RILEM Workshop on Rheological Measurements of Cement-Based Materials (2018);** Eds. Chafika Djelal, Yannick Vanhove
- **PRO 133 (online version) CO2STO2019 - International Workshop CO2 Storage in Concrete (2019);** Eds. Assia Djerbi, Othman Omikrine-Metalssi, Teddy Fen-Chong

### Published by Springer:

- **External Sulphate Attack – Field Aspects and Lab Tests – RILEM Final Workshop of TC 251-SRT, Vol. 21:** Eds. Esperanza Menéndez Méndez, Veronique Baroghel-Bouny



© Springer



© Springer

- **Proceedings of the International Conference of Sustainable Production and Use of Cement and Concrete, Vol. 22:** Eds. Jose Fernando Martirena Hernandez, Adrian Alujas-Díaz, Meylin Amador-Hernandez
- **Rheology and Processing of Construction Materials - RheoCon2 & SCC9, Vol. 23;** Viktor Mechtcherine, Kamal Khayat, Egor Secrieru

### STAR published in 2019

- **Modelling of Concrete Behaviour at High Temperature - Temperature - State-of-the-Art Report of the RILEM Technical Committee 227-HPB, Vol. 30;** Eds. Pierre Pimienta, Alain Milliard

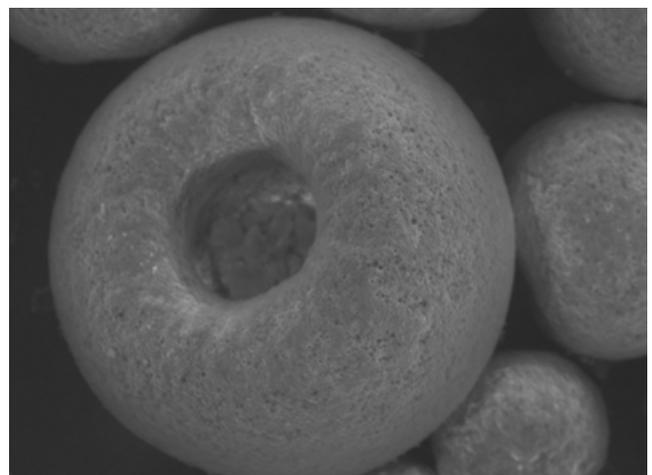
### Recommendations published in 2019

- **Recommendation of RILEM TC 243-SGM:** functional requirements for surface repair mortars for historic buildings
- **Recommendation of RILEM TC 252-CMB:** relationship between laboratory short-term aging and performance of asphalt binder
- **Recommendation of RILEM TC 249-ISC** on non-destructive in situ strength assessment of concrete
- **Recommendation of RILEM TC 260-RSC** for using superabsorbent polymers (SAP) for improving freeze–thaw resistance of cement-based materials
- **Recommendation of RILEM TC 237-SIB** on fragmentation test for recycled asphalt



*Commercial Phase Changing Material (PCM) microcapsules under the Scanning Electron Microscope (SEM)*  
© Ledra and Building Materials Laboratories, University of Cyprus.

*Observing encapsulated rejuvenators for asphalt self-healing. Laboratory of Materiales (LabMAT), University of Bio-Bío, Chile*  
© Jose Norambuena-Contreras



# 50 Years of *Materials and Structures*

**M**aterials and Structures, the flagship journal of RILEM, was established in 1968 and in 2018 it celebrated its 50th anniversary. The journal was founded under the name “Materials and Structures – Testing and Research” (in French: Matériaux et Constructions - Essais et Recherches). It replaced the RILEM Bulletin (first published in 1951), which had already grown beyond a periodical about the life of the RILEM association to become a technical-scientific review of the work performed by the different laboratories affiliated to RILEM. To accommodate more and more frequent contributions, the frequency of the then bilingual journal (in English and French) was increased from four issues of the Bulletin to six issues per year of *Materials and Structures*. *Materials and Structures* was a success from its start – the first volume collected 60 articles from the most renowned experts in the field. Already the first issues of the new journal attracted a number of high-profile scientific contributions, together with more practical reports about, e.g., testing standardisation. Communications about RILEM had also their place in the journal (a section still called RILEM Bulletin) and this continued for several years.

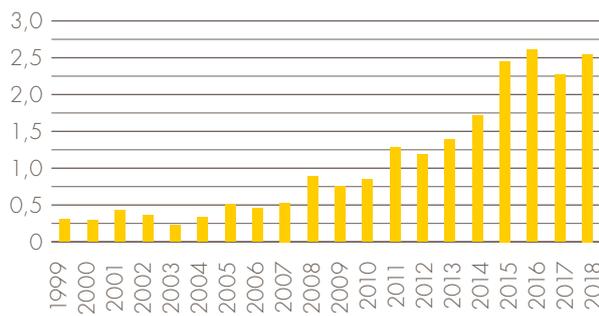
Over the years, *Materials and Structures* continued to fulfil its dual role of scientific journal and official organ of the RILEM Association. Over two hundred RILEM Technical Recommendations have been produced by RILEM Technical Committees and published in *Materials and Structures* during the years. Many of these recommendations have been adopted in research and practice and are used by national and international standardisation bodies as a basis for their work. RILEM committees also regularly publish other types of papers, including reviews and round robin results, in

*Materials and Structures*. Another strong link with the association is the invited paper by the yearly RILEM L’Hermite medalist.

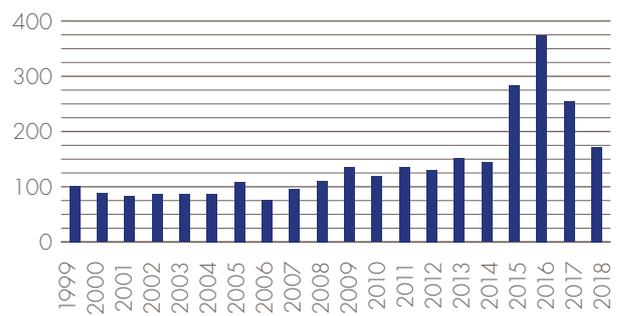
Fast forward to new millennium, *Materials and Structures* is among the leading platforms for exchange of new findings and ideas in the field of construction materials and structures. Teaming up with Springer in 2006 allowed it to expand its visibility, reach and services to RILEM members. The impact factor increased substantially in the last 20 years and currently hovers around 2.5 (Figure 1, left). In the same period, the number of papers has increased, at first gradually, with a spike in the years 2015–2017 (Figure 2, right). This spike was due to the decision of publishing rapidly all papers that had been accumulating in the online-first backlog. *Material and Structures* then switched in 2016 from a traditional, issue-based publication scheme to Continuous Article Publication. While this decision affected the impact factor in the short term, now all papers submitted to *Materials and Structures* are published in final form already a few days after acceptance. Among other advantages, the faster publication process has considerably increased the number of citations of recent articles.

The number of submissions has been steadily increasing – the submissions in 2018 were about seven times more than in 2006. In the last couple of years this number appears to flatten out and seems to have finally stabilised in 2019 (Figure 2). The increase in the number of submission means a steep increase of workload for the editors and the reviewers compared to just a few years ago. The editorial board has been substantially enlarged in the last few years to cope with the high number of submissions. In parallel, the acceptance rate has been decreasing, from about 40% 15 years ago to

## Impact factor



## Papers submitted



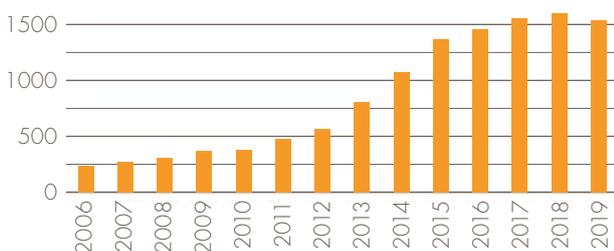
**Figure 1.** Left JCR 2-year impact factor of Materials and Structures (1999–2018). Right published papers (citable items) in Materials and Structures (1999–2018). Source: JCR.

currently around 10%. The time to first decision has also been progressively reduced to currently less than one month on average.

In addition to publishing the RILEM L'Hermite medalist paper each year, since the year 2015 the editorial board is selecting about 10 papers per year for the Outstanding Paper Award (these papers are granted open access in addition). From the year 2013, the best reviewers of the journal are also awarded yearly.

To honour the 50 years anniversary, a topical issue with 16 invited papers by renowned experts in the field of building materials and structures and not surprisingly, all active RILEM members, was published. This issue both honours the most important contributions to the scientific mission of RILEM in the last decades, and at the same time discusses current important topics and developments.

## Published papers



**Figure 2.** Papers submitted to Materials and Structures (from the first full year of the collaboration with Springer in 2006).

In the next few years, *Materials and Structures* will face many challenges:

I expect that the journal will have to transform into full open access in the near future. RILEM has an ongoing experiment in open-access publishing with *RILEM Technical Letters*, which is paving the way to the future. *Materials and Structures* is

currently also an important source of revenue for the RILEM Association. This role can hopefully be preserved after the transition.

Issues with publication ethics are already occupying resources of the Editorial Board and of Springer/Nature and will undoubtedly increase with the increase of publication pressure on researchers worldwide.

The identity of *Materials and Structures* will need to be preserved in the future. Many of the current authors are not RILEM members and do not have any special relationship with the association. At the same time, many RILEM members are subject to the same publication pressure of all other researchers and tend to follow the highest impact factor when choosing a publication venue. Everybody involved with the journal should make sure that *Materials and Structures* will remain also in the future the primary output for the work of the RILEM Technical Committees and for all our Members.

Finally, I take this occasion to thank all people that helped and help with the journal. First of all the Editors-in-Chief in the last several years: Jacques Marchand, Jason Weiss and after myself now John Provis. The TAC chairs and the other Deputy Editors, all the Associate Editors and last but not least the reviewers (many of them RILEM members). In addition, the journal can always count on the support of the RILEM presidency. *Materials and Structures* has also profited through the years by technical help from the RILEM secretariat and in the last four years by the Managing Editor Mateusz Wyrzykowski.

Long life to *Materials and Structures*!

Pietro Lura  
Editor-in-Chief 2016–2019  
Dübendorf, Switzerland, 4 December 2019

# RILEM Honours and Awards

## Gustavo Colonnetti Medal

Starting in 2016, the Gustavo Colonnetti Medal, named after the first RILEM President and co-founder of the association, is awarded each year to up to two researchers under 35 years of age, who have made an outstanding scientific contribution to the field of construction materials and structures.

In 2019 the awards were granted to Dr Bahman Ghiassi, University of Nottingham, UK and to Dr Claire White, Princeton University, USA. They received their medal and presented their work at the 2nd RILEM Spring Convention in Rovinj, Croatia in March 2019. The videos of their lectures are on the RILEM YouTube channel.

*Bahman Ghiassi with Nele de Belie,  
TAC Chair and President of the  
G. Colonnetti Jury © AG*

*Claire White with Nele de Belie,  
TAC Chair and President of the  
G. Colonnetti Jury © AG*



## Robert L'Hermite Medal

Since 1975, the Robert L'Hermite Medal is awarded annually to a researcher under 40 years of age, who has made an exceptional scientific contribution to the field of construction materials and structures.

In 2019 the medal was granted to Dr Augusto Cannone Falchetto, Technische Universität Braunschweig, Germany. He received his medal and presented his work at the International Conference on Innovative Materials for Sustainable Civil Engineering (IMSCE) in Nanjing, China, in August 2019. The video of his presentation is on the RILEM YouTube channel.

*Augusto Cannone Falchetto with  
Nele de Belie, TAC Chair and  
President of the R. L'Hermite Jury  
© Daniela Ciancio*



# RILEM Fellows and Honorary Members

Created in 1993 by the General Council, the honorary title of RILEM Fellow is bestowed upon RILEM Senior Members who have made exceptional contributions to RILEM in their capacities as research scientist, engineer, technical leader or educator. RILEM also distinguishes Honorary Members. These are people who have rendered exceptional services to the association – for example, having successfully chaired the work of several TCs, or having contributed to giving a new orientation to the association. RILEM fellowships were bestowed on Mette Geiker, Pietro Lura, Takafumi Noguchi and Manu Santhanam in Nanjing in August 2019. Prof. Karen Scrivener was elected as Honorary Member, also in Nanjing.



**Mette Geiker** *“In recognition of his work as Deputy Chair and member of several Technical Committees, and active contributing member of the Standing Committees of RILEM.”*

*Ravindra Gettu handing over the RILEM fellowship certificate to Mette Geiker © IMSCE 2019*



**Pietro Lura** *“In recognition of his work as the Editor-in-Chief of Materials and Structures, Member of several Technical Committees, and active contributing member of the standing committees of RILEM.”*

*Ravindra Gettu handing over the RILEM fellowship certificate to Pietro Lura © IMSCE 2019*



**Takafumi Noguchi** *“In recognition of his work as Chair and Member of Technical Committees, and active contributing member of the Standing Committees of RILEM.”*

*Ravindra Gettu handing over the RILEM fellowship certificate to Takafumi Noguchi © IMSCE 2019*



**Manu Santhanam** *“In recognition of his work as Primary organiser and Honorary President of the RILEM Week 2017 in Chennai, Member of several Technical Committees, and Secretary and active contributing member of the Development Activities Committee of RILEM.”*

*Ravindra Gettu handing over the RILEM fellowship certificate to Manu Santhanam during a RILEM program in Chennai © Radhakrishna Pillai*



**Karen Scrivener** *“In recognition, during her leadership and active participation in RILEM technical and standing committees, of her exemplary efforts to promote the advancement of the science of construction materials, especially cement-based materials.”*

*Ravindra Gettu, Johan Vyncke, Karen Scrivener, Nicolas Roussel © IMSCE 2019*

# RILEM Worldwide

**R**egional groups are committees that have been established to overcome language barriers and to encourage and facilitate the development of RILEM technical and educational activities. RILEM has identified 10 geographical areas, described below. National groups are essentially “sub-committees” of the regional groups and are composed of members from the same country. More details about the list of countries in each area, the members of the groups, etc., can be found on the RILEM WORLDWIDE webpages.

## 1. Sub-Saharan Africa

Regional Convener: Wolfram SCHMIDT, BAM, GERMANY

Although so far, no RILEM Regional Group has been formally installed for this region, the recently nominated regional convener Wolfram Schmidt and the former regional convener Hans Beushausen have been very active in the last months launching new initiatives and exploring possibilities and potential in this region.

Amongst the initiatives, the most important is probably the establishment in 2018 of the Technical Committee AMC “Use of Agro-Based Materials as Cementitious Additions in Concrete and Cement-Based Materials”, chaired by Prof. Said Kenai, University of Blida, Algeria. The committee has 14 members, many from countries in this region. This new TC can be seen as a major success in attracting Africa-based researchers to contribute to a topic that is of direct relevance to them.

Another initiative that has worked very well is the scholarship program that allowed African PhD students to attend the 72nd RILEM Week in Delft, The Netherlands, in 2018. This grant is already advertised and going forward for the 74th RILEM Week in Sheffield, UK, in 2020.



4th meeting of the Japanese National group of RILEM on 31 October 2019  
© JPN-RILEM

## 2. East Asia

National Convener: Takafumi NOGUCHI, University of Tokyo, JAPAN

There is currently no official regional group established in this area that includes Japan, Korea, Dem. Rep. (North), Korea, Rep. (South), Brunei, Indonesia, Malaysia, Philippines, Singapore and Timor (East). In this part of the world, the most populated country in terms of RILEM Members is Japan. The Japanese National group was created in Lyngby, Denmark, in 2016. The president of this group is Dr Mitsumasa Midorikawa from the Building Research Institute. Japan has a long history with RILEM, dating back even before the RILEM Annual Week organised in Japan in 2004.

RILEM is very grateful for the major efforts of JPN-RILEM and is looking forward to the organisation of the RILEM Annual Week 2022 in Kyoto.

## 3. China

Regional Convener: Kefei LI, Tsinghua University, CHINA

In August 2016, RILEM reorganised its international structure of regions, in order to optimise



Prof. Li Zongjin was newly elected as President of the Chinese National RILEM Group © CHN-RILEM



Prof. Liu Jiaping, Vice Chairman of Chinese National RILEM Group, won the First Prize of the Jiangsu Science and Technology Award © CHN-RILEM

international communication and development. China has become a RILEM Region on its own, no longer being part of the East Asia Region. As a consequence of this reorganisation, the Chinese National RILEM Group has now become the Chinese Regional RILEM Group: CHN-RILEM. The group already has 157 members, and this number is meant to increase thanks to the never-ending effort of the group to organise technical activities. The president of this group is Prof. Li Zongjin, Macau University.

Some of the most important features of 2019 were: 1) the 73rd RILEM Annual Week organised in Nanjing, China; 2) the establishment of the Technical Committee DCM "Long-term durability of structural concretes in marine exposure conditions" chaired by Prof. Kefei Li, Tsinghua University, Beijing; and 3) the "Concrete Development Trend and Application Technology" Seminar, co-organized by the Chinese National RILEM Group in Qingdao in June 2019.

The group is currently organising a workshop on thermodynamics and test methods of cement-based materials and is establishing new collaboration with the Latin America RILEM group.

#### 4. Latin America

Regional Convener: Alejandro DURÁN-HERRERA, Universidad Autonoma de Nuevo Leon, MEXICO  
National Convener: Eduardo M. R. FAIRBAIN, COPPE-UFRJ, BRAZIL

The Latin-American Regional (Lat-RILEM) Group was established in 2010 with its formal 1st meeting held in Buenos Aires, Argentina. The meeting was organised by RILEM and AAHES (Asociación Argentina del Hormigón Estructural). The current president of this group is Ing. Luis Traversa. In the last years, Argentinean participation decreased due to the devaluation of the country's currency;

consequently, two of the corporate members of this country discontinued their RILEM membership. In general, for a third consecutive year, national policies have affected to some degree the budget for academia.

On a positive note, a geographical diversification is currently observed in contrast with previous years when the participation of Argentinean and Brazilian members prevailed. The number of Latin American countries with RILEM members increased from 8 to 11. The focus of the Regional Presidium has been put on diversifying the location of RILEM events in the region, geographically and thematically. Unfortunately, during the last year, there has been a slightly reduced participation in events in the region, in comparison with previous periods.

Despite the difficult circumstances, the group still managed to celebrate a couple of scientific events in 2019 in Cuba and Mexico. The RILEM Week 2021 will be held in Mérida, Mexico, in cooperation with ALCONPAT. This event will certainly attract participants from many parts of this geographic area and it will allow the recruitment of new members. RILEM has three institutional partners in Latin America (IBRACON, ALCONPAT and AATH) and strategic joint actions are being designed and encourages for promoting RILEM actions.

#### 5. North America & Caribbean

Regional Convener: Dimitri FEYS, Missouri University of Science and Technology, USA

At this moment, no RILEM Regional Group has been formally installed for this region. The regional convener, Dr Dimitri Feys, has worked towards maintaining and enhancing the collaboration with ACI, a RILEM partner since 2009. Both organisations co-sponsored the Annual Meeting of the Cements division of ACerS (American Ceramics Society), that took place at the University of Illinois,



Ravindra Gettu and other RILEM officials/members enjoying the Congress Dinner with local hosts of CONPAT 2019 in Tuxtla Gutiérrez, Mexico © Lat-RILEM



Administration meeting for Lat-RILEM and RILEM Annual Week 2021 ©Lat-RILEM

Urbana-Champaign, USA, in June 2019. RILEM plans to co-sponsor the same event in 2020.

## 6. Middle East-North Africa

Regional Convener: Mohammed SONEBI, Queen's University Belfast, UNITED KINGDOM

Mohammed Sonebi is the regional convener of this area. The main activity consists in promoting RILEM and trying to attract members to join the scientific benefits of RILEM membership. The ongoing conversations for potential collaborations are with Algeria, Kuwait and Lebanon. The most significant achievement is the decision to organise the 2022 RILEM Spring Convention in Rabat, Morocco, in conjunction of the conference CMSS22.

## 7. Eastern Europe & Central Asia (CIS-RILEM)

Regional Convener: Vyatcheslav R. FALIKMAN, NIIZhB, RUSSIAN FEDERATION

National Convener: Vyatcheslav R. FALIKMAN, NIIZhB, RUSSIAN FEDERATION

On 22 April 2016, the CIS-RILEM Regional Group was successfully launched in an inaugural meeting at the Moscow State University of Design and Technology (MSUDT), Russia. Since then, the activities of the group where RILEM was promoted have been numerous. A highlight is the formation of the Group of Young Professionals (under the age of 35 years), created on the basis of the Structural Concrete Association. Today it has 53 members from different regions of Russia. The group has as a main target the involvement of young people in the work of RILEM and CIS-RILEM and to update a detailed plan of action for CIS-RILEM. The group is also focusing on translating some selected RILEM STARS into Russian, first of all "Durability Design of Concrete Structures" and "Report of RILEM Technical Committee 130-CSL".

## 8. South Asia

Regional Convener: Radhakrishna G. PILLAI, IIT Madras, INDIA

No RILEM Regional Group has been formally installed for this region. However, several events have taken place in India. December 2018 saw two RILEM major events: the 3rd R. N. Raikar Memorial International Conference & 'Gettu - Kodur' International Symposium in Mumbai and the International Symposium on Recent Advances in Concrete Construction and Preservation in Chennai. The local regional convener has been busy trying to recruit members from Thailand.

## 9. Pacific

At the moment, no RILEM Regional Group has been formally installed for this region. However, there are currently 13 RILEM members in Australia and 3 members in New Zealand. Furthermore, RILEM has an established Partnership with the Concrete Institute of Australia (CIA).

## 10. Europe

Regional Convener: Violeta BOKAN BOSILJKOV, University of Ljubljana, SLOVENIA

At the last DAC meeting in Nanjing, China, in August 2019, the regional convener, Dr Violeta Bokan-Bosiljkov, reported about the several RILEM sponsored and co-sponsored recent events in Europe: between September 2018 and August 2019, Europe has seen 3 EAC courses, 5 RILEM sponsored and 9 RILEM co-sponsored events. Amongst the RILEM events, there was the successful second RILEM Spring Convention held in Rovinj, Croatia, in March 2019. The strategic plan for the upcoming period is to enhance contacts with researchers of the Balkan region.

# Financial statement for the year 2018

From a financial point of view, RILEM consists of two distinct entities:

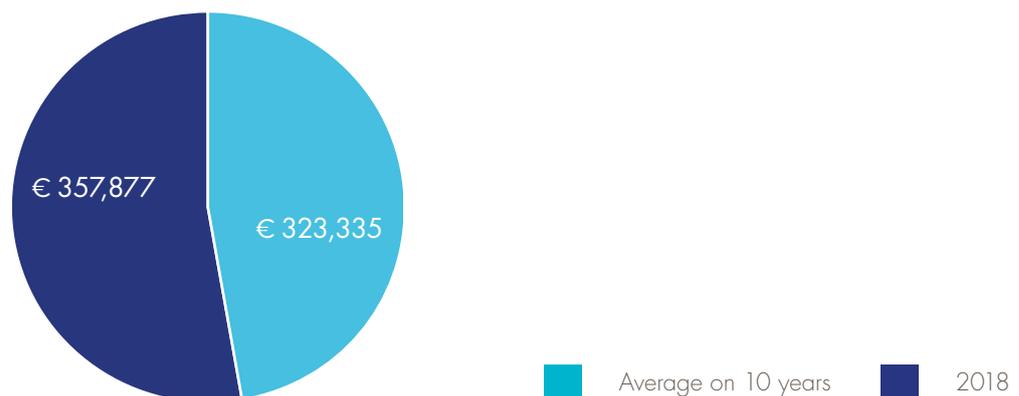
- An association under Swiss law, but established in France, non-profit, without VAT and non-taxable, named **RILEM Association**. The association manages members and scientific, educational and development activities

- A private company with a single shareholder (i.e. RILEM Association), for profit, subject to VAT and profit tax, named **EURL RILEM Publications**. The company manages publishing activities.

Publications activities are related to two scientific journals: *Materials and Structures*, which is a hybrid international flagship journal published by SPRINGER/NATURE and *RILEM Technical Letters* which is a new open access journal recently started by RILEM. For these two journals, part of the publishing and management is the subject of a subcontract with a third party.

Income for **RILEM Association** comes from membership fees: individual members and corporate members. As a result of increased activity of RILEM, income from membership fees is some 10% higher in 2018 than the average value calculated between 2008 and 2017 (Figure 1).

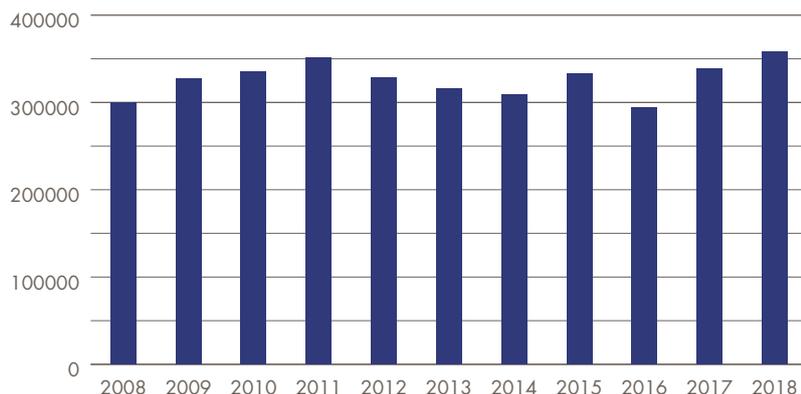
## Membership fees



**Figure 1** Memberships income in 2018 = € 357,877 versus the average of the last 10 years (€ 323,335)

For full information, Figure 2 outlines the variation of membership fees versus time from 2008 to 2018.

## Membership fees versus time for the last 11 years

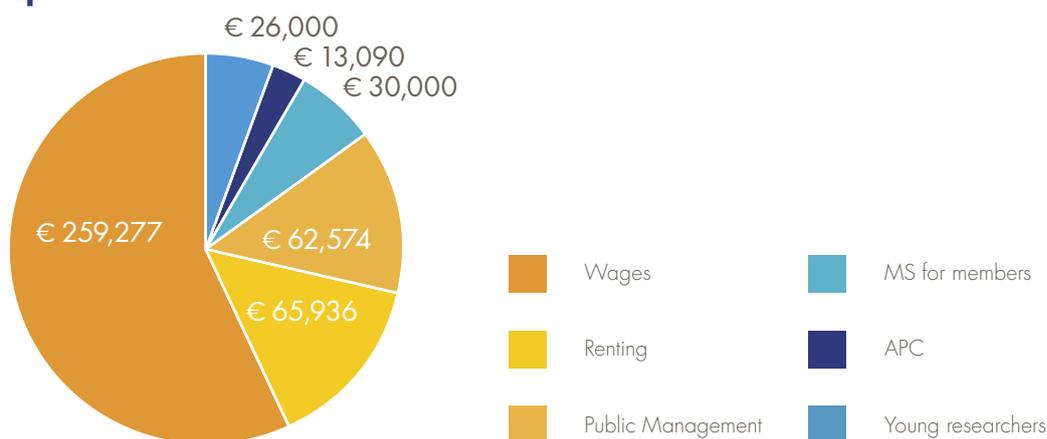


**Figure 2** Membership fees versus time for the last 11 years

The net income for **EURL RILEM Publications** comes from royalties paid by SPRINGER/NATURE on the revenue from the sale of *Materials and Structures*, mainly via consortia agreements, which is reduced by the cost of giving free access to *Materials and Structures* for all RILEM members,

The costs for **RILEM Association** are related to the salary and expenses for the General Secretariat, the costs of publication of articles in the journal *RILEM Technical Letters*. Similarly, the association pays the Article Processing Costs (APCs) for publishing a limited number of Open Access papers, selected by the Board of Editors, in the journal *Materials and Structures*. Focus has in the last years also been on actions to promote young researchers in RILEM, such as prizes for the best posters at conferences, awards (Colonnetti and L’Hermite medals), etc. As from 2019 an external consultant has also been hired to promote RILEM within the industry and with young people Figure 3 gives an overview of the distribution of costs for the association.

## Summary of expenses



**Figure 3** Summary of the expenses (€) of both the RILEM Association and EURL RILEM Publications

For 2018 the financial result of RILEM Association was slightly negative - € 5,227 while the financial result of EURL RILEM Publication was positive + € 18,347 which lead to a positive combined result of € 13,120 which will be reinvested in further RILEM activities.

# International Partnerships

During the last five years, RILEM has established several strategic partnership agreements with national and international organisations from around the globe. These partnerships are very helpful for the exchange of organisational, technical and educational information, and promote an optimal spread of state-of-the-art information concerning construction and building materials all over the world.

RILEM values its partners and the associated joint workshops and conferences. Some partnerships have also resulted in joint technical activities and joint publications. In order to further improve the cooperation with the partners, RILEM Development Advisory Committee and Bureau are developing a partnership monitoring plan, including specific performance indicators. This will be discussed and put in place in the coming years. RILEM is committed to spending more energy and time in order to intensify existing partnerships, create new collaborations, and create a flourishing network of construction material experts worldwide!



AATH - Asociación Argentina de Tecnología del Hormigón (Carlos Alberto Milanesi)



Latino-American Association of Quality Control, Pathology and Construction Recuperation, Alconpat International (Carmen Andrade)



American Concrete Institute, ACI (Ron Burg)



Concrete Institute of Australia, CIA (David Millar)



International Federation for Structural Concrete, fib (David Fernández-Ordóñez)



Brazilian Concrete Institute, IBRACON (Enio Pazini Figueiredo)



International Academy of Engineering, IEA (Vyatcheslav Falikman)

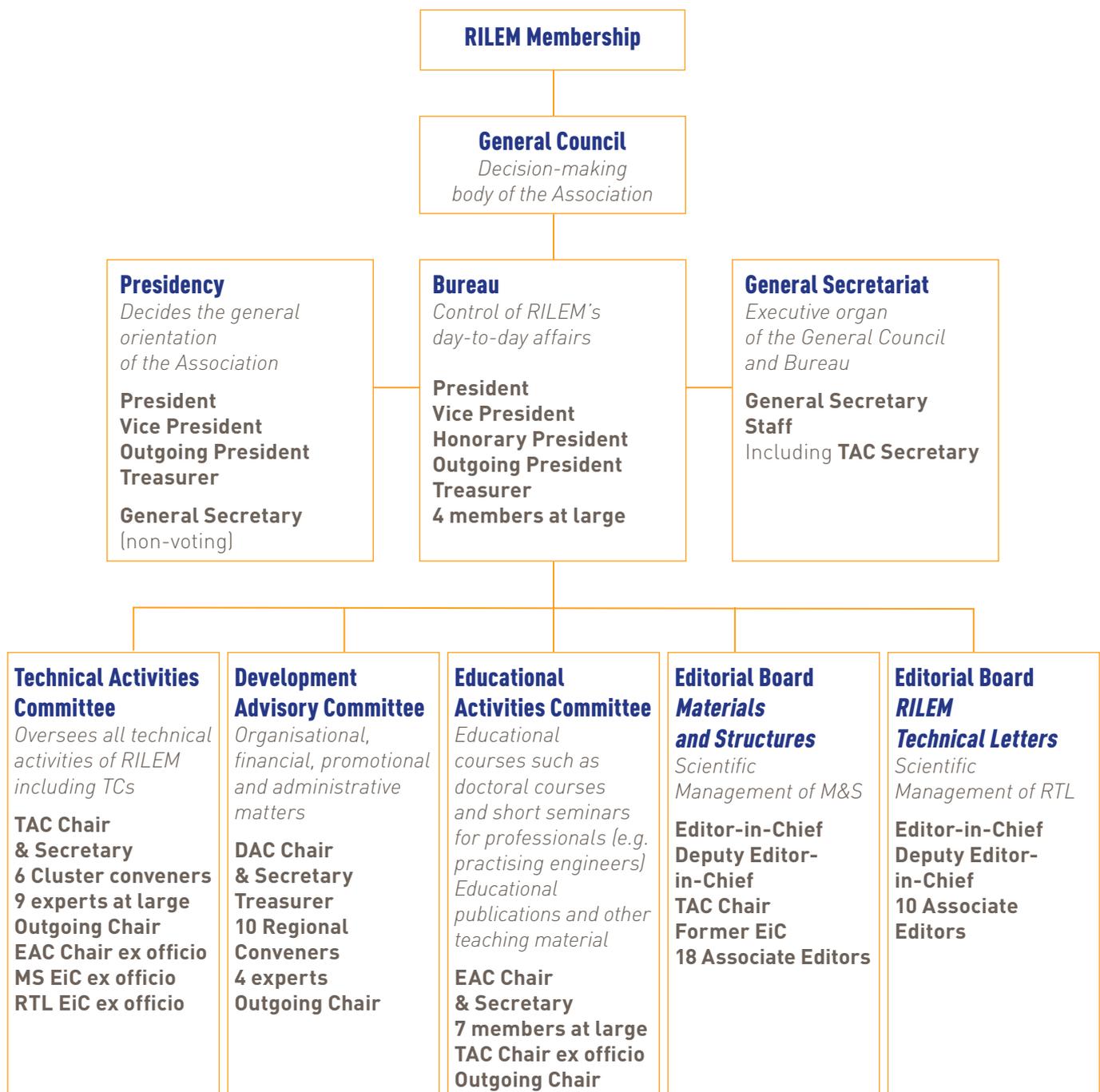


International Society for Asphalt Pavements, ISAP (Gabriele Tebaldi)



Joint Committee on Structural Safety (Michael Havbro Faber)

# RILEM Organisation Chart



# RILEM Officers and staff



## President

Dr Ravindra GETTU, IIT Madras, INDIA



## Vice President

Dr Nicolas ROUSSEL, IFSTTAR, FRANCE



## Outgoing President

Mr. Johan VYNCKE, BBRI, BELGIUM



## Honorary President for 2019

Prof. Changwen MIAO, Jiangsu Institute of Building Science, CHINA



## Treasurer

Prof. Raoul FRANCOIS, LMDC, FRANCE  
(until August 2019)



Prof. Pietro LURA, EMPA, SWITZERLAND  
(from September 2019)

## Bureau members



Dr Esperanza MENÉNDEZ MÉNDEZ,  
IETcc (CSIC), SPAIN



Prof. Takafumi NOGUCHI, University of Tokyo, JAPAN



Dr Wolfram SCHMIDT, BAM, GERMANY



Dr Maria Rosa VALLUZZI, University of Padova, ITALY

## Technical Activities Committee



**TAC Chair** Prof. Nele DE BELIE,  
Ghent University, BELGIUM

**TAC Secretary** Ms Anne GRIFFOIN

**Outgoing Chair** Dr Nicolas ROUSSEL, IFSTTAR, FRANCE

**EAC Chair** Prof. Karen SCRIVENER, EPFL,  
SWITZERLAND

**MS Editor-in-Chief** Prof. John L. PROVIS, University of Sheffield, UNITED KINGDOM

**RTL Editor-in-Chief** Dr Alexandra BERTRON, LMDC,  
FRANCE

## Conveners

**Cluster A** Prof. Daman K. PANESAR, University of Toronto, CANADA

**Cluster B** Dr Esperanza MENÉNDEZ MÉNDEZ, IETcc (CSIC), SPAIN

**Cluster C** Prof. Giovanni PLIZZARI, University of Brescia, ITALY

**Cluster D** Dr Alexandra BERTRON, LMDC, FRANCE

**Cluster E** Dr Enrico SASSONI, University of Bologna, ITALY

**Cluster F** Prof. Michael WISTUBA, Technical University of Braunschweig, GERMANY

## Experts

Dr Sergio P. CAVALARO, Loughborough University, UNITED KINGDOM

Dr Eshan DAVE, University of New Hampshire, USA

Prof. Hervé DI BENEDETTO, ENTPE, FRANCE

Prof. Kei-ichi IMAMOTO, Tokyo University of Science, JAPAN

Dr Arun MENON, IIT Madras, INDIA

Dr Daniel OLIVEIRA, Univ. of Minho, PORTUGAL

Prof. John PROVIS, University of Sheffield, UNITED KINGDOM

Prof. Gaurav SANT, UCLA, UNITED STATES

Dr Anya VOLLPRACHT, RWTH Aachen, GERMANY

*fib Observer*

Prof. Frank DEHN, MFPA-Leipzig GmbH, GERMANY

## TC Chairs

**Prof. Antonietta AIELLO**, University of Lecce, ITALY  
**Dr Sofiane AMZIANE**, Polytech' Clermont, FRANCE  
**Prof. Ueli ANGST**, ETH Zürich, SWITZERLAND  
**Dr Miguel AZENHA**, University of Minho, PORTUGAL  
**Prof. Hassan BAAJ**, University of Waterloo, CANADA  
**Prof. Arnaud CASTEL**, Centre for Infrastructure Engineering and Safety, AUSTRALIA  
**Dr Emmanuel CHAILLEUX**, IFSTTAR, FRANCE  
**Prof. Nele DE BELIE**, Ghent University, BELGIUM  
**Prof. Marco DI PRISCO**, Politecnico di Milano, ITALY  
**Dr Andrea GRAZIANI**, Università Politecnica delle Marche, ITALY  
**Mr. Bruno HUET**, Lafarge Holcim, FRANCE  
**Prof. Said KENAI**, University Saad Dahlab-Blida, ALGERIA  
**Prof. Eddie KOENDERS**, Technical University Darmstadt, GERMANY  
**Prof. Kefei LI**, Tsinghua University, CHINA  
**Prof. Jiaping LIU**, Southeast University, CHINA  
**Dr Barbara LUBELLI**, TNO, THE NETHERLANDS  
**Prof. Fernando MARTIRENA**, Universidad Central de las Villas, CUBA  
**Prof. Viktor MECHTCHERINE**, Technical University of Dresden, GERMANY  
**Prof. Changwen MIAO**, Jiangsu Institute of Building Science, CHINA  
**Prof. Barzin MOBASHER**, Arizona State University, USA  
**Prof. Jean-Claude MOREL**, Coventry University, UNITED KINGDOM  
**Prof. Ioanna PAPAYIANNI**, Aristotle University of Thessaloniki, GREECE  
**Dr Pierre PIMENTA**, CSTB, FRANCE  
**Dr Lily POULIKAKOS**, EMPA, SWITZERLAND  
**Dr Nicolas ROUSSEL**, IFSTTAR, FRANCE  
**Dr Javier SANCHEZ**, IETcc (CSIC), SPAIN  
**Prof. Pedro SERNA ROS**, Polytechnic University of Valencia, SPAIN  
**Prof. Karen SCRIVENER**, EPFL, SWITZERLAND  
**Dr Tomoki SHIOTANI**, Tobishima Corporation, JAPAN  
**Dr Mohammed SONEBI**, Queen's University Belfast, UNITED KINGDOM  
**Dr Gabriele TEBALDI**, University of Parma, ITALY  
**Prof. Børge Johannes WIGUM**, NorStone AS, Sandnes, NORWAY  
**Prof. Folker H. WITTMANN**, Aedificat Institute Freiburg, GERMANY  
**Prof. Jianzhuang XIAO**, Tongji University, CHINA  
**Prof. Feng XING**, Shenzhen University, CHINA  
**Dr Guang YE**, Ghent University, BELGIUM

## Development Advisory Committee



**DAC Chair Prof. Geert DE SCHUTTER**, Ghent University, BELGIUM (until August 2019)



**DAC Chair Prof. Hans D. BEUSHAUSEN**, University of Cape Town, SOUTH AFRICA (from September 2019)

**DAC Secretary Mrs Judith HARDY**

**Outgoing Chair Prof. Geert DE SCHUTTER**, Ghent University, BELGIUM (from September 2019)

**RILEM Treasurer Prof. Pietro LURA**, EMPA, SWITZERLAND

## Experts

**Dr Hiroyuki MIYAUCHI**, BRI, JAPAN  
**Dr Manfred N. PARTL**, EMPA, SWITZERLAND  
**Dr Lei LEI**, TU Munich, GERMANY  
**Prof. Jianping LIU**, SEU Nanjing, Nanjing, CHINA

## Regional Conveners

**Middle East & North Africa Dr Mohammed SONEBI**, Queen's University Belfast, UNITED KINGDOM

**Sub-Saharan Africa Dr Wolfram SCHMIDT**, BAM, GERMANY

**China Prof. Kefei LI**, Tsinghua University, CHINA

**South Asia: Dr Radhakrishna G. PILLAI**, IIT Madras, INDIA

**Europe Dr Violeta BOKAN BOSILJKOV**, University of Ljubljana, SLOVENIA

**East Europe & Central Asia Prof. Vyatcheslav R. FALIKMAN**, NIIZhB, RUSSIAN FEDERATION

**Latin America Dr Alejandro DURÁN-HERRERA**, Universidad Autonoma de Nuevo Leon, MEXICO

**North America & Caribbean Dr Dimitri FEYS**, Missouri University of Science and Technology, USA

## National Conveners

**Prof. Eduardo M.R. FAIRBAIRN**, COPPE-UFRJ, BRAZIL  
**Prof. Vyatcheslav R. FALIKMAN**, NIIZhB, RUSSIAN FEDERATION

**Prof. Takafumi NOGUCHI**, University of Tokyo, JAPAN

## Educational Activities Committee



**EAC Chair Prof. Doug HOOTON**, University of Toronto, CANADA (until August 2019)



**EAC Chair Prof. Karen SCRIVENER**, EPFL, SWITZERLAND (from September 2019)

**EAC Secretary Ms Fanta SYLLA**

**Outgoing Chair Prof. Doug HOOTON**, University of Toronto, CANADA (from September 2019)

**TAC Chair Prof. Nele DE BELIE**, Ghent University, BELGIUM

## Members

**Prof. Robert FLATT**, ETH Zürich, SWITZERLAND

**Prof. Mette GEIKER**, NTNU, NORWAY

**Dr Wolfram SCHMIDT**, BAM, GERMANY

**Prof. Gideon VAN ZIJL**, University of Stellenbosch, SOUTH AFRICA

**Prof. Jason WEISS**, Oregon State University, USA

## Board of Editors (*Materials and Structures*)



**Editor-in-Chief** Prof. Pietro LURA,  
EMPA, SWITZERLAND (until August 2019)



**Editor-in-Chief** Prof. John L. PROVIS,  
University of Sheffield, UNITED  
KINGDOM (from September 2019)

**Deputy Editor-in-Chief** Prof. Nele DE BELIE, Ghent  
University, BELGIUM

**Deputy Editor-in-Chief** Prof. Giovanni PLIZZARI,  
University of Brescia, ITALY

**Former Editor-in-Chief** Prof. Jason WEISS, Oregon  
State University, USA

### Associate Editors

Dr Dimitrios AGGELIS, Vrije University of Brussels,  
BELGIUM

Dr Alexandra BERTRON, INSA Toulouse, FRANCE

Dr Laura DE LORENZIS, Technical University  
of Braunschweig, GERMANY

Dr Elisa FRANZONI, University of Bologna, ITALY

Prof. Mette GEIKER, NTNU, NORWAY

Prof. Guillaume HABERT, ETH Zürich, SWITZERLAND

Dr Burkan ISGOR, Oregon State University, USA

Prof. Konstantin KOVLER, NBRI, ISRAEL

Prof. Kefei LI, Tsinghua University, CHINA

Prof. Karin LUNDGREN, Chalmers University  
of Technology, SWEDEN

Dr Ippei MARUYAMA, Nagoya University, JAPAN

Prof. Viktor MECHTCHERINE, Technical University  
of Dresden, GERMANY

Prof. Barzin MOBASHER, Arizona State University, USA

Dr Climent MOLINS, Universitat Politècnica  
de Catalunya, SPAIN

Dr Manfred N. PARTL, EMPA, SWITZERLAND

Dr Arnaud PERROT, Université de Bretagne Sud,  
FRANCE

Prof. Gaurav SANT, UCLA, UNITED STATES

Dr Gabriele TEBALDI, University of Parma, ITALY

Dr Maria Rosa VALLUZZI, University of Padova, ITALY

Dr Guang YE, Ghent University, BELGIUM

## Board of Editors (*RILEM Technical Letters*)



**Editor-in-Chief** Dr Alexandra BERTRON,  
LMDC, FRANCE

**Deputy Editor-in-Chief** Prof. John L. PROVIS,  
University of Sheffield, UNITED KINGDOM

### Associate Editors

Prof. Ueli ANGST, ETH Zürich, SWITZERLAND

Prof. Shashank BISHNOI, IIT Delhi, INDIA

Dr Emmanuel CHAILLEUX, IFSTTAR, FRANCE

Prof. Robert FLATT, ETH Zürich, SWITZERLAND

Prof. Guillaume HABERT, ETH Zürich, SWITZERLAND

Dr Susan BERNAL LOPEZ, University of Sheffield,  
UNITED KINGDOM

Dr Kenichiro NAKARAI, Gunma University, JAPAN

Dr Enrico SASSONI, University of Bologna, ITALY

Dr Ruben SNELLINGS, VITO, BELGIUM

## Secretariat General Staff



**Secretary General**  
Mrs Judith HARDY



**Management Assistant**  
Ms Fanta SYLLA



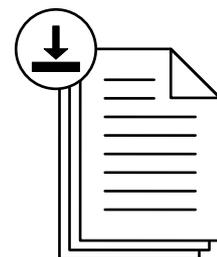
**Head of Publication and Communication**  
Ms Anne GRIFFOIN

## Consultant



**RILEM Implementation Manager**  
Mrs Daniela CIANCIO

You can download all  
of our publications for free  
on the **RILEM website**



# Upcoming major events

## for 2020 and beyond

	Spring Event	Annual Week
2020/74 <sup>th</sup>	Guimarães, Portugal (Eduardo Pereira)	Sheffield, UK (John Provis)
2021/75 <sup>th</sup>	Paris, France	Mérida, Mexico (Alejandro Durán-Herrera)
2022/76 <sup>th</sup>	Rabat, Morocco (Mohammed Sonebi)	Kyoto, Japan (Takafumi Noguchi)
2023/77 <sup>th</sup>	Milan, Italy (Liberto Ferrara)	Vancouver, Canada (Nemy Banthia)

If you are willing to host a RILEM event in 2025, contact the RILEM Secretariat

---

## Did you know that...?



... you can **reset your password** by clicking on “Forgot password” in the Login/Register button in the top right corner of the homepage



... **you can view all events on a map** instead of a list by clicking on map mode in the display option at the top of the “all events” page



... you need to **update your email** preferences and subscriptions in your profile to receive news from RILEM



... you can **download the RILEM app** from the App store or Google Play



... **you can access the *Materials and Structures* archives** from 1968 to 2005 directly from RILEM’s website, even as a registered user



... **you can view all members** (individual, corporate, etc.) **on a map** by clicking on “RILEM worldwide” and then “map”



... **you can search for a RILEM member** in the RILEM directory by first name, last name, company or country

---

RILEM would like to thank all the contributors who made this 2019 Annual Report possible.

