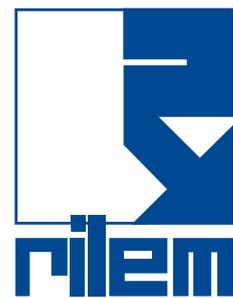
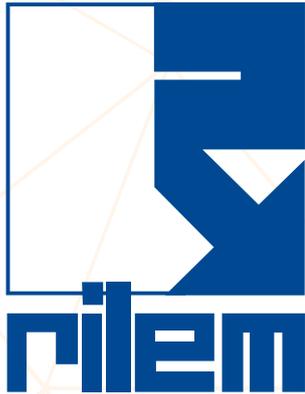




ANNUAL REPORT 2016



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



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 to promote scientific cooperation in the area of construction materials and structures worldwide.

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

The three main goals of RILEM are:

- to promote sustainable and safe construction, and improved performance and cost benefits for society;
- to stimulate new directions of research and its applications, promoting excellence in construction;
- to favour and promote cooperation at international scale by general access to advanced knowledge.

Become a member

If you are interested in joining RILEM, please consult our website and become a member: membership.rilem.net

Individual subscription is possible from 75€ for Student members. RILEM has not increased its membership fees since 2008, and even decreased the individual member fee in 2015. Reduced fees of -40% and -60% apply for developing countries.

Editorial

by RILEM Presidency

It is our pleasure to present this RILEM Annual Report 2016, as an overview of the activities, achievements and highlights of RILEM in the past year. Many of these capitalise on hard work, investments and plans made before and which, thanks to the sustained commitment of the RILEM staff and many volunteers, came to flourish further in 2016. The result is quite impressive:

- Over 30 sponsored and co-sponsored events were organised all over the globe, bringing together hundreds of specialists and experts.
- Not less than 12 PhD courses were run, involving more than 200 of our young colleagues.
- More than 900 technical papers were published as conference proceedings, STAR reports and papers in our journals.
- RILEM recommendations, of which 10 were produced in 2016, were revived and are now published again, mentioning credits to the authors and supervising TC members. Our aim here is to reach out to practitioners in collaboration with our international partners, especially ACI and *fib*.
- New ground was broken by successfully launching our new Open Access journal RILEM technical letters, and at the same time, the impact of our flagship journal Materials & Structures has been boosted to an impressively high impact factor, while also offering very speedy article processing and continuous publishing.
- A very successful RILEM Annual Week in Copenhagen, at which new heights were reached with attendance, PhD courses, and accompanying workshops.

This review covers details of the above, and more. A particular place is given to the presentation of different awards bestowed by the association in the past year on eminent people who made much appreciated contributions to spread technical knowledge worldwide. We can refer here to the authors of specially credited Open Access papers published in M&S, the medalists of our new Colonnetti Award, and RILEM fellows and Honorary members who have committed their careers in many respects to support the association in its endeavour to spread technical excellence. All this is the fruit of collaboration between many people, whom we duly thank for their work, both visible and not so visible.

As rightly pointed out in the Industry Agenda “Shaping the Future of Construction: A Breakthrough in Mindset and Technology” of the World Economic Forum published in May 2016, ‘materials constitute an extremely powerful lever for innovation’. This report estimated that “70% of product innovation across all industries is derived from new or improved materials. With approximately one-third of construction cost attributed to building materials, the scope for applying advanced building materials is considerable”. Clearly linked to this is also the application of these materials in structures and constructions. As RILEM, we feel we are on the right track with our focus on Materials and Technologies. With the successes we have achieved in 2016, it is with confidence and enthusiasm that we look to the future to continue on the same trend and to propel our activities to new heights. We look forward to meeting many of you again in 2017, and are indeed proud and thankful to be able to work with so many excellent colleagues.

On behalf of the RILEM presidency

Ravindra Gettu, Johan Vyncke, Mark Alexander



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2016

Key Numbers

Membership

1272 members

107 countries

Activities

39 Technical Committees

Co-sponsorship

12 courses

30 events

Publications

5 State-of-the-Art reports

14 proceedings

2 reports

10 recommendations

Short report of the 70th RILEM Annual Week in Lyngby, Denmark



Technical
University of
Denmark (DTU)
campus in Lyngby,
Denmark.
Credits: Pascale
Ducornet

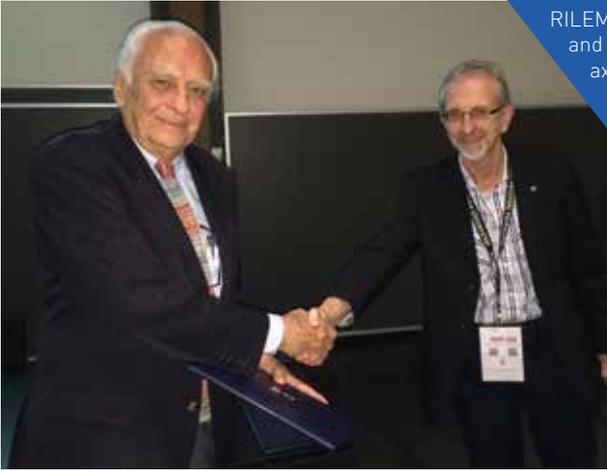
The International RILEM Annual Week is the most important RILEM event each year. The organisation combines RILEM meetings (standing committees and technical committees) with an international conference on topics within the fields of Construction Materials, Systems and Structures, open to contributions on different kinds of materials, including concrete, masonry, asphalt, timber, polymers, etc. The event also provides major opportunities for networking and public relations activities. This year the RILEM Annual Week was organized from 15 to 29 August in Lyngby, Denmark, in conjunction with the event “Materials, Systems and Structures in Civil Engineering 2016” (MSSCE2016). The event was held at the campus of the Technical University of Denmark organized by our 2016 Honorary President Ole M. Jensen. The event consisted of a series of parallel and consecutive conference and doctoral course segments on different topics and a number of scientific and administrative meetings. Approximately 570 persons coming from about 55 different countries were scientifically involved in the event.

MSSCE2016 was considered very successful as it fulfilled its main aims. These included having an event with a scientifically wide scope, but still of high scientific quality, and to have a tight integration of scientific and educational elements.



Nyhavn,
Copenhagen,
Denmark.
Credits: Pascale Ducornet

RILEM Fellow
and Honorary
awards
2015



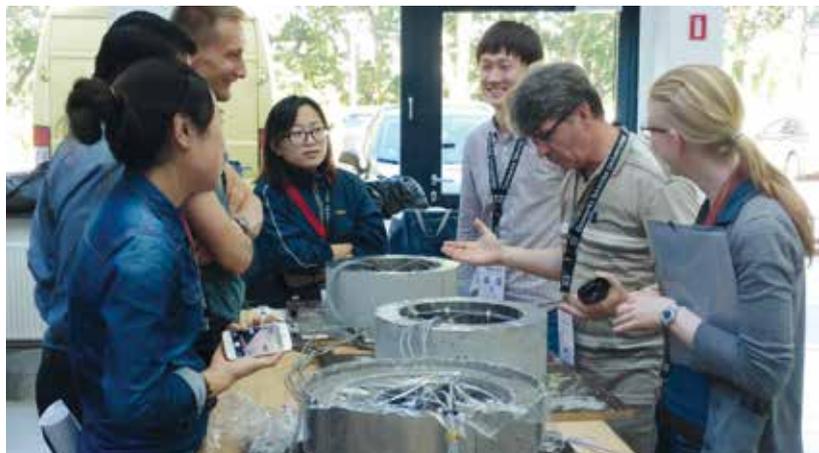
Luis Lima received from Mark Alexander, RILEM Past President, the diploma of RILEM Fellow awarded in 2015 'in recognition of his exceptional scientific contribution to RILEM's work'. Luis was President of Lat-RILEM, RILEM's regional group in Latin America. Credits: Geert De Schutter



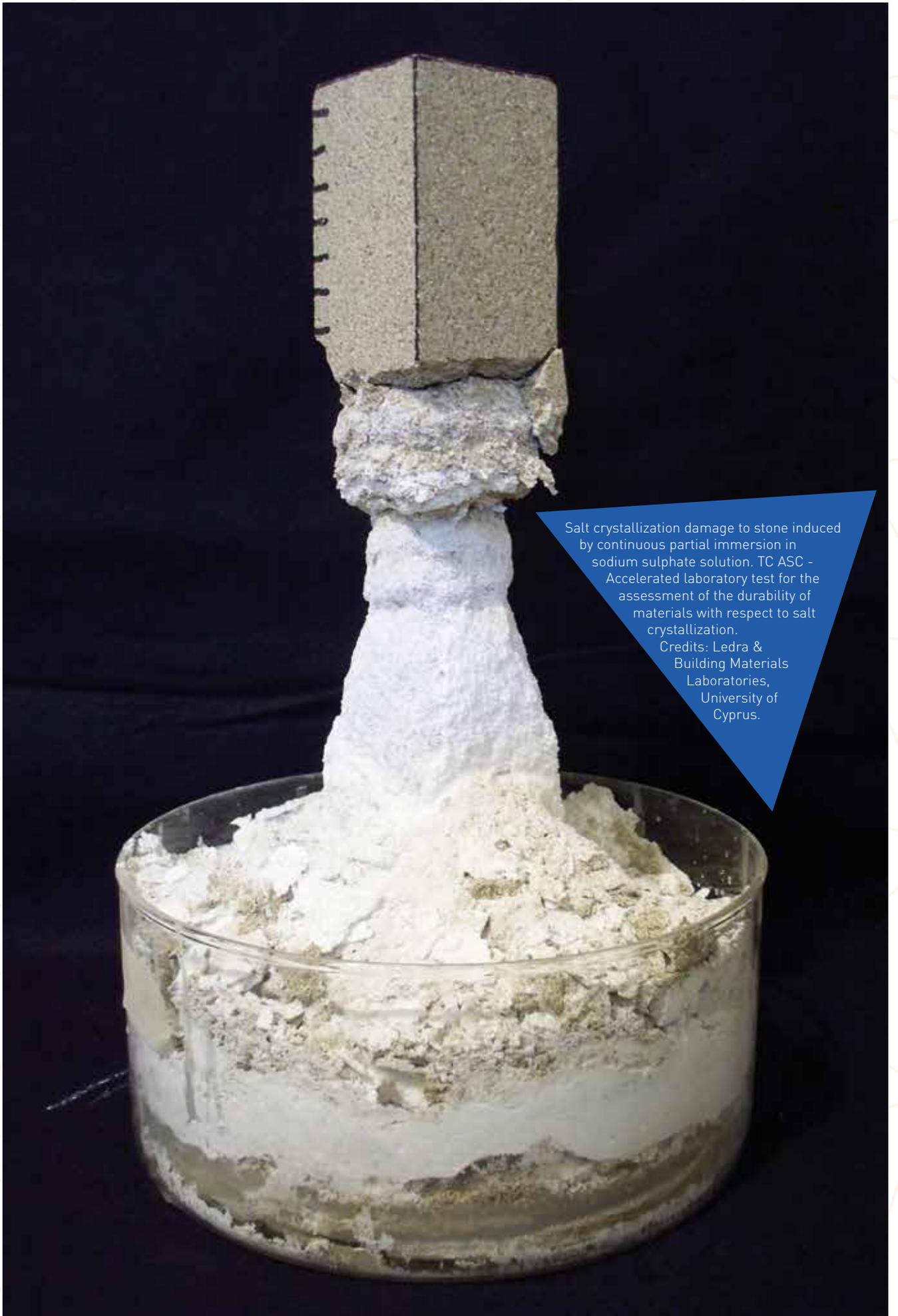
Carmen Andrade received from Mark Alexander the diploma of Honorary Member awarded in 2015 'in recognition of her long-lasting commitment and devotion to RILEM, including numerous technical and management activities. Her major role in leading a range of activities and setting a benchmark for excellence has made an impact on the entire scientific community. Her vision and devotion to RILEM have brought unique value to the members of RILEM'. Carmen was RILEM President from 2000 to 2003. Credits: Geert De Schutter



Technical Tour on
25 August 2016:
Stevns' Cliffs,
Denmark.
Credits: Anne
Griffoin



Prof. Konstantin Kovler giving the lecture during the Annual RILEM Week 2016 (DTU-COST-RILEM Doctoral Course Technical University of Denmark Lyngby, Denmark August 15-19, 2016). Credits: Marija Nedeljkovic



Salt crystallization damage to stone induced by continuous partial immersion in sodium sulphate solution. TC ASC - Accelerated laboratory test for the assessment of the durability of materials with respect to salt crystallization.

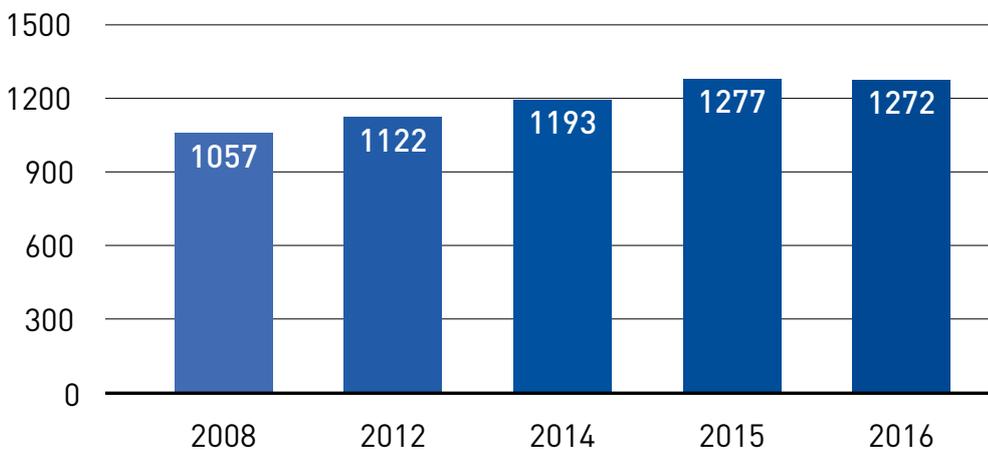
Credits: Ledra & Building Materials Laboratories, University of Cyprus.

RILEM Membership

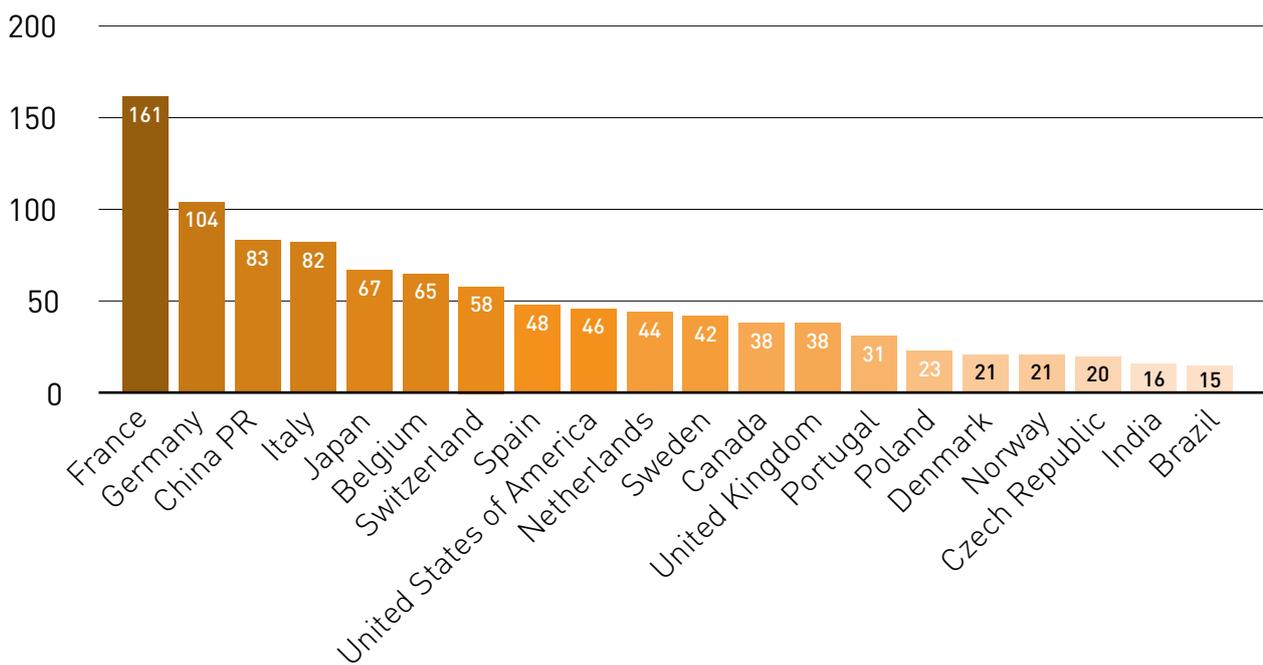
Since 2008, RILEM has seen a steady growth in total number of members (individual and corporate), climbing from 1057 in 2008 to 1277 in 2016.

Based on individual membership numbers, France is the foremost country within RILEM, with many other European countries present in the top-20. However, in recent years, non-European countries have significantly climbed the list of top-countries in terms of number of individual RILEM members. China, India and Brazil have all joined the top-20 list recently. Since 2008, the number of individual RILEM members has shown an average annual growth of 2.7% (about 30 new members each year on average). Part of this growth is happening in "newer" regions, with for example China PR showing an average annual growth of 20% (about 10 new members each year on average).

Total number of RILEM members (individual and corporate)



Countries TOP-20 (based on total #individual membership)



Technical Committees

Within RILEM, Technical committees have a limited functioning life of 5 to 7 years. Every year, several technical committees are terminated, after successfully reaching their goals and new TCs are created. While during the last decade the number of active Technical Committees fluctuated around 35, this year it grew to reach 39. Every year, 4 to 5 new technical committees are created, with a record high of 10 new committees in 2016. The full list of active TCs and details about their work can be consulted at tc.rilem.net

The following new committees have been approved in 2016:

Cluster: Material Processing and Characterization (Convener: Barzin Mobasher)

- HDB - Hygrothermal behaviour and Durability of Bio-aggregate based building materials (Chair: Sofiane Amziane)
- TCE - Testing and characterisation of earth-based building materials and elements (Chair: Jean-Claude Morel)
- DFC - Digital fabrication with cement-based materials (Chair: Nicolas Roussel)
- SHE - Self-Healing Concrete – its efficiency and evaluation (Chair: Feng Xing)

Cluster: Structural Performance and Design (Convener: Takafumi Noguchi)

- IAM - Damage Management in Consideration of Repair/ Retrofit-Recovery in Concrete and Masonry Structures by Means of Innovative NDT (Chair: Tomoki Shiotani)

Cluster: Service Life and Environmental Impact Assessment (Convener: Alexandra Bertron)

- CCH - Stress Corrosion Cracking and Hydrogen Embrittlement of Concrete-Reinforcing Steels (Chair: Javier Sanchez)
- CIM - Benchmarking Chloride Ingress Models on Real-life Case Studies: Theory and Practice (Chair: Eddie Koenders)

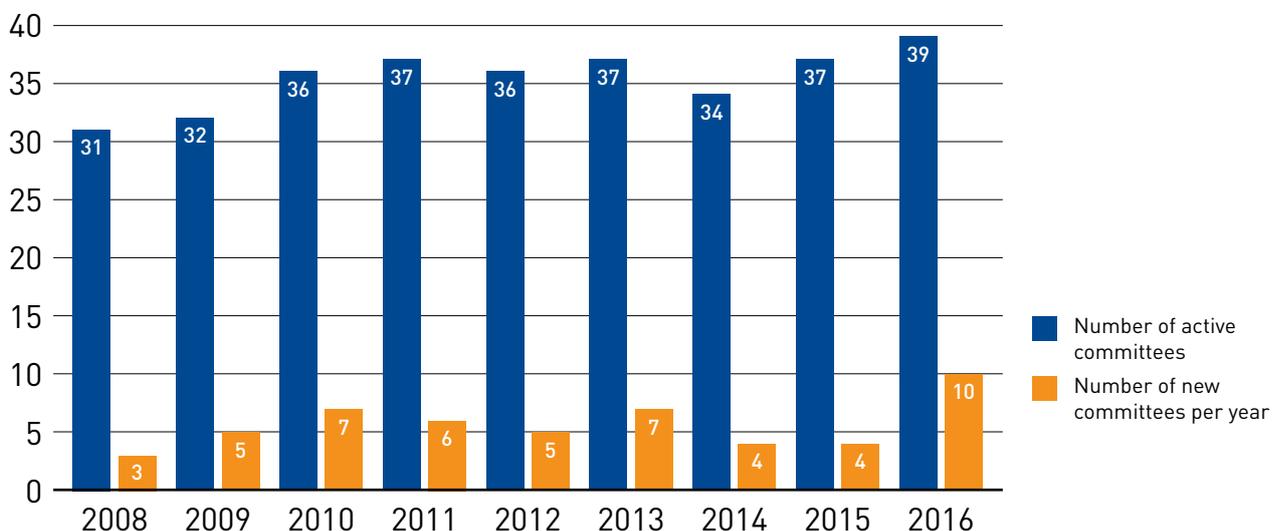
Cluster: Masonry, Timber and Cultural Heritage (Convener: Robert Flatt)

- ASC - Accelerated laboratory test for the assessment of the durability of materials with respect to salt crystallization (Chair: Barbara Lubelli)

Cluster: Bituminous Materials and Polymers (Convener: Hervé Di Benedetto)

- CHA - Crack-healing of Asphalt Pavement Materials (Chair: Hassan Baaj)
- PIM - Phase and Interphase behaviour of bituminous materials (Chair: Emmanuel Chailleux)

Technical committees





TC 261-CCF (Creep behavior in Cracked Sections of Fiber Reinforced Concrete) Round-Robin Test: pictures of the production process of concrete specimens for the RRT and pallet packaging to deliver all over the world. They produced more than 450 concrete multi-sized specimens in 4 days, which means a considerable production volume. All these specimens were sent to 22 different destinations (Canada, Argentina, Brazil, Japan, India, South Africa, Australia and Europe). Credits: TC 261-CCF

8th meeting of TC 246-TDC (Test methods to determine durability of concrete under combined environmental actions and mechanical load) on 16 October 2016 in Beijing, China.
Credits: Ling Wang



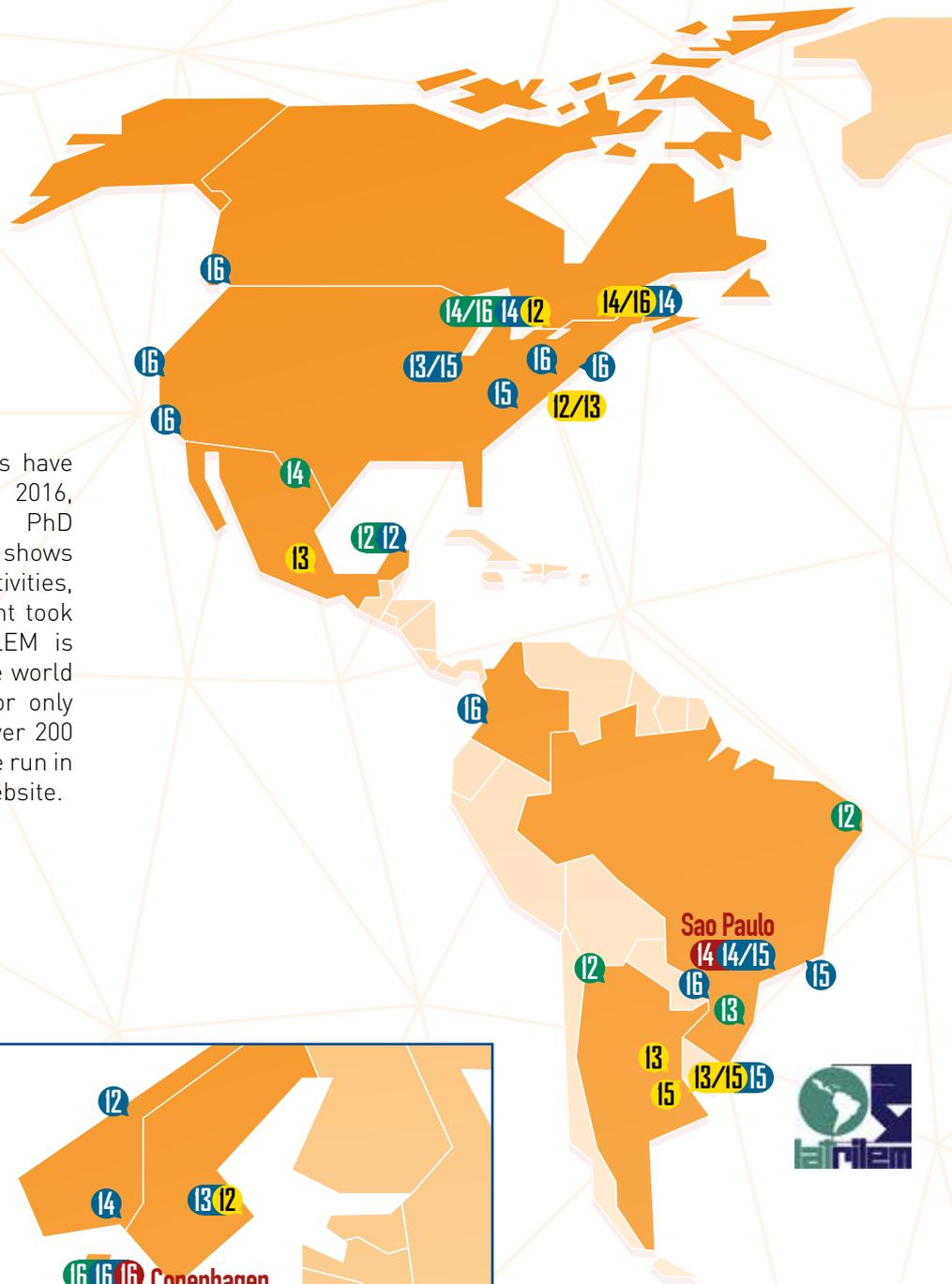
Working activities at 2nd meeting of TC 258-AAA (Avoiding alkali aggregate reactions in concrete - Performance based concept), at the Geological Society, London, UK, on 27-28 April 2015.
Credits: Gintautas Skripkiunas

Technical committees successfully terminated in 2016:

- 233-FPC: Form pressure generated by fresh concrete chaired by Peter BILLBERG
- 235-CTC: Corrosion initiating chloride threshold concentrations in concrete chaired by Luping Tang
- 236-BBM: Bio-aggregates based building materials chaired by Sofiane Amziane
 - STAR and recommendation to be published in 2017
- 239-MCM: On-site measurement of concrete and masonry structures by visualized NDT chaired by Masayasu Ohtsu
 - STAR published in 2016
- 240-FDS: A framework for durability design of fibre-reinforced strain-hardening cement-based composites (SHCC) chaired by Gideon Van Zijl
 - STAR to be published in 2017
- 257-DHM: Design and application of hydraulic grouts for repair and strengthening of historic masonry structures chaired by Androniki Miltiadou-Fezans
- MCT: Multi-component transport and chemical equilibrium in cement based materials chaired by Björn Johannesson

Technical and Educational Events

Many technical and educational events have again been organized worldwide in 2016, including conferences, workshops, PhD courses, and the like. The following map shows the geographical spread of the activities, also mentioning the year that the event took place. It can be concluded that RILEM is really reaching out to all corners of the world bringing together many people! As for only the PhD courses organised in 2016, over 200 persons participated. New courses to be run in 2017 can be consulted on the RILEM website.



- Six Doctoral courses were held by Ole M. Jensen as a “primeur” one week prior to the 2016 RILEM Annual Week at DTU in Denmark with the same themes as 5 of the 12 RILEM conferences within MSSCE2016. A total of 106 students attended.
 - Concrete with Supplementary Cementitious Materials (N. de Belie, K. Kovler, O.M. Jensen)
 - Service Life of Cement-based Materials and Structures (O.M. Jensen, K. Kovler, S. Staquet, M. Azenha)
 - Moisture in Materials and Structures (K. Kielsgaard Hansen, L.-O. Nilsson, C. Rode)
 - Clay and Shale (I.L. Fabricius, Varvara Zania, Louise Belmonte)
 - Building Information Modelling, Open Data Standards in Civil Engineering (BIM) (Jan Karlshøj)
 - Concrete and Radiological Aspects (O.M. Jensen)
- The Concrete Microscopy Course CMC organised by Oguzhan Copuroglu was held as each year at TU Delft on 17-20 May 2016.
- The Chemistry of Cement and Concrete event organised by Doug Hooton was held at the University of Toronto on 6-10 June 2016.
- The Corrosion Science & Corrosion Control for Infrastructure course was organised by Dessi Koleva & R. Polder at the TU Delft on 19-24 June 2016.
- Milan Jirasek again organised in Prague the course Modeling of Localized Inelastic Deformation, on 17-23 September 2016.
- An International PhD-student Workshop organised by Carmen Andrade on Service life and Durability of Reinforced Concrete was held at IFSTTAR in Paris on 26-27 September 2016.
- Eddie Koenders organised the Multi Scale Modeling of Concrete course, MMC in Nanjing on 17-21 October 2016.

Students of “Service Life on Cement-based Materials and Structures”, “Concrete with Supplementary Cementitious Materials” and “Concrete and Radiological Aspects” courses in August 2016 in Lyngby, Denmark.
Credits: Ole Jensen

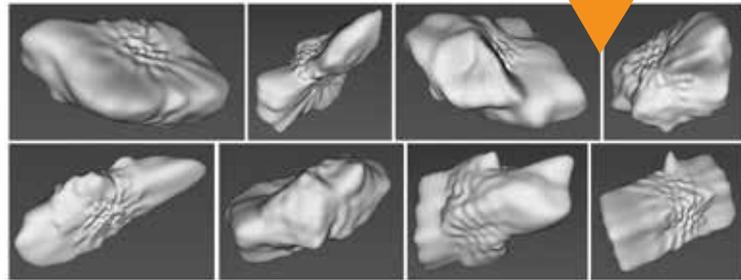


This image depicts the world's first 3D concrete printed panel (printed in 2011 at Loughborough University). The piece was manufactured to illustrate what can be achieved using 3DCP combined with a temporary support system that allows the printing of components that can include conformal voids. The control of the deposition of material is key to the provision of greater function of a component and to material minimisation, which unlocks the gateway to design optimisation. Photo: Agnese Sanvito, Credits: Dr Richard Buswell and Professor Simon Austin from the School of Civil and Building Engineering at Loughborough University in the UK.



RILEM Technical work in pictures

Figure 9: 3-D VRML images of random particles based on the results from μ CT scanning and spherical harmonic analysis [T5-1 crushed fines fraction; $10 \mu\text{m} < \text{VESD} < 20 \mu\text{m}$; $1;6 < L/W < 2.4$]. Credits: Rolands Cepuritis & Edward J. Garboczi



"Flexible mould" method: a way to manufacture curved concrete elements by deformation after casting; the image shows a demoulded, clearly curved, concrete element of 50 mm thickness. Credits: Roel Schipper, TU Delft



Visit to the construction site by Mr. Esper Christophersen, Vice President for Civil Works & Concrete production, MTHøjgaard.
Credits: Marija Nedeljko



Concrete vessels are increasingly replacing the traditional oak barrels to produce wine. Among other things, micro-oxygenation through the concrete walls seems to help improve the quality of the wine. The technology was first developed in France. Patricio Río running air-permeability tests on the outer and inner surfaces of vessels made in Argentina (to link it to the micro-oxygenation of the wine).
Credits: Patricio Río

Kamal Khayat and Surendra Shah RILEM Honorary Member, at SCC 2016 (8th International RILEM Symposium on Self-Compacting Concrete & 6th North American Conference on Design and Use of Self-Consolidating Concrete) on 15-18 May 2016 in Washington DC, USA. Credits: Kamal Khayat





9th International Conference on Fracture Mechanics of Concrete and Concrete Structures (FraMCoS) on 28 May - 1 June 2016 in Berkeley, USA. Credits: Eric Landis

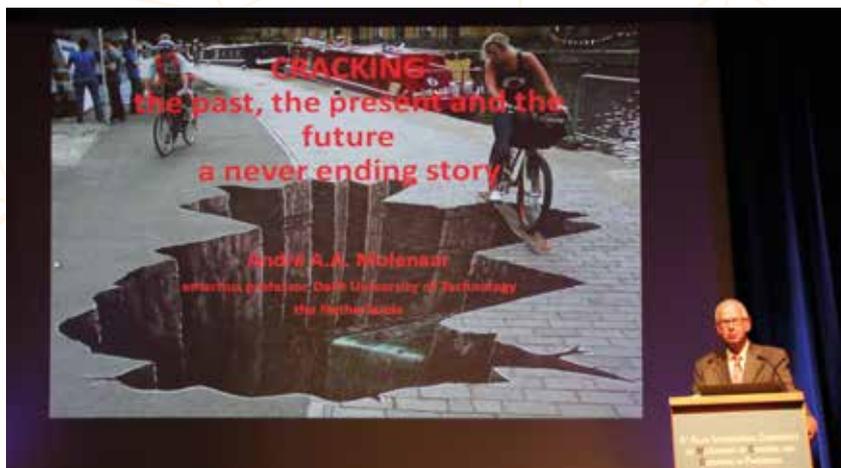


Zdeněk P. Bažant received from Ravindra Gettu, RILEM Vice-President his diploma of RILEM Honorary Member awarded in 2015 at FraMCoS 9. Credits: Eric Landis

FRC-CREEP 2016 Workshop Participants on 9-10 March 2016 in Valencia, Spain. Credits: TC 261-CCF



8th RILEM International Conference on Mechanisms of Cracking and Debonding in Pavements organized by the RILEM TC 241-MCD (Mechanisms of Cracking and Debonding in Asphalt and Composite Pavements), first keynote lecture done by the emeritus Professor AAA Molenaar on 7 June 2016 in Nantes, France. Credits: Armelle Chabot



Publications

Of utmost importance for RILEM is the dissemination of information. This is facilitated through different channels such as the flagship publication of RILEM, our journal Materials and Structures, the Open Access journal RILEM Technical Letters, conference proceedings, STAR reports and RILEM recommendations. Enormous advances have been made this year especially with respect to the impact factor of M&S, the launch of RILEM Technical Letters and the revival of issuing technical Recommendations.

Materials and Structures

The flagship publication of RILEM is the peer reviewed scientific journal Materials and Structures, published through Springer, and cited in Web of Science. During recent years, the impact factor of Materials and Structures steadily increased, reaching 2.45 in 2015. Compared to other important journals in our field, the impact factor of Materials and Structures increased at a higher pace.

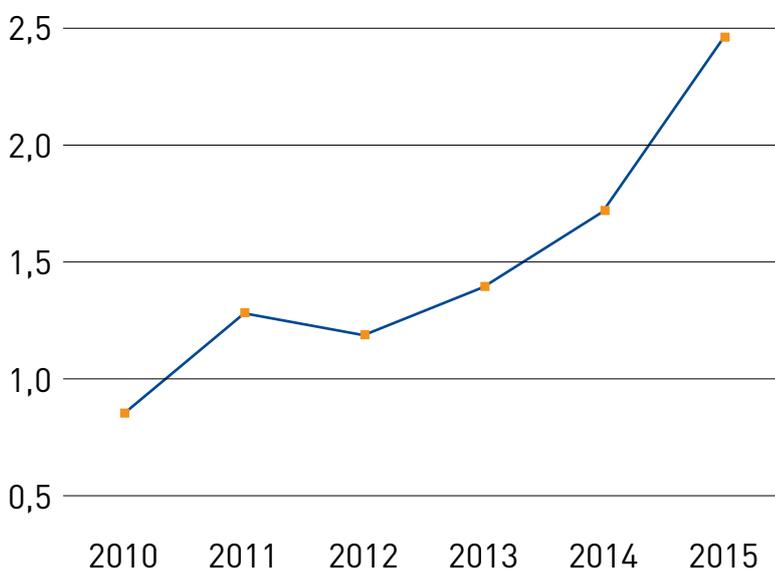
In 2016 Dr. Mateusz Wyrzykowski (Empa, Switzerland) was appointed as new Managing Editor of the journal taking over from Ms. Pascale Ducornet who is particularly thanked for her work for Materials and Structures in the past years. Also, in order to allow a faster publication process, Materials and Structures changed from a traditional issue-based publication scheme to Continuous Article Publication (CAP) in August 2016. The CAP scheme is currently applied to all articles accepted in Materials and Structures, leading to extremely fast publication.

Articles published in the new scheme are marked with a unique consecutive article number that replaces the consecutive page numbers. According to the CAP scheme, each accepted article is immediately added to an issue and appears online in final form in two to four weeks after acceptance. This also means that the backlog that had existed for several years was for the first time reduced to zero.

In addition to the faster publishing process brought about by CAP, the Editorial Board, technical staff and our volunteer reviewers make every effort to ensure a rapid and competent review process. Thanks to these efforts, the time to decision of the newly submitted articles was also substantially reduced in 2016. This gave good reason again to award this year the Best Reviewer Award to the 7 best volunteer reviewers.

As in the previous year, in 2016 the editorial Board awarded the authors of 10 articles with the Outstanding Paper Award. In recognition of the high quality and relevant contribution to the journal and the whole RILEM community, RILEM granted the selected articles full Open Access. This means that the awarded articles can be accessed and downloaded with no restrictions, providing better outreach and dissemination.

Impact Factor Materials and Structures



List of the Outstanding Papers 2016

- Dam and wet-screened concrete creep in compression: in situ experimental results and creep strains prediction using model B3 and composite models by C. Serra, A. L. Batista, N. Monteiro Azevedo
- Changes in rheology of self-consolidating concrete induced by pumping by Dimitri Feys, Geert De Schutter, Kamal H. Khayat, Ronny Verhoeven
- Anhydrite/aerogel composites for thermal insulation by D. Sanz-Pont, D. Sanz-Arauz, C. Bedoya-Frutos, R. J. Flatt, S. López-Andrés
- 3Dim experimental investigation of linear viscoelastic properties of bituminous mixtures by Daniel Perraton, Hervé Di Benedetto, Cédric Sauzéat, Bernhard Hofko, Andrea Graziani, Quang Tuan Nguyen, Simon Pouget, Lily D. Poulidakos, Nouffou Tapsoba, James Grenfell
- The pore solution of blended cements: a review by Anya Vollpracht, Barbara Lothenbach, Ruben Snellings, Johannes Haufe
- Ingress of NaCl in concrete with alkali reactive aggregate: effect on silicon solubility by Anne Heisig, Liudvikas Urbonas, Robin E. Beddoe, Detlef Heinz
- Investigation on the effect of supplementary cementitious materials on the critical chloride threshold of steel in concrete by Federica Lollini, Elena Redaelli, Luca Bertolini
- Strätlingite: compatibility with sulfate and carbonate cement phases by M. U. Okoronkwo, F. P. Glasser
- Creep and drying shrinkage of a blended slag and low calcium fly ash geopolymer Concrete by A. Castel, S. J. Foster, T. Ng, J. G. Sanjayan, R. I. Gilbert
- Fast solidification kinetics of parts of bituminous binders by Hartmut R. Fischer, Bert Dillingh, Bastiaan Ingenhut

Materials and Structures Best Reviewers 2015

- Ralejs Tefers, Chalmers University of Technology, Sweden (passed away end 2015)
- Hannelore Derluyn, Ghent University, Belgium
- Catherine Papanicolau, University of Patras, Greece
- Burkan Isgor, Oregon State University, USA
- Alexander Michel, Technical University of Denmark, Denmark
- Bernhard Hofko, Vienna University of Technology, Austria
- Geert De Schutter, Ghent University, Belgium

RILEM Technical Letters



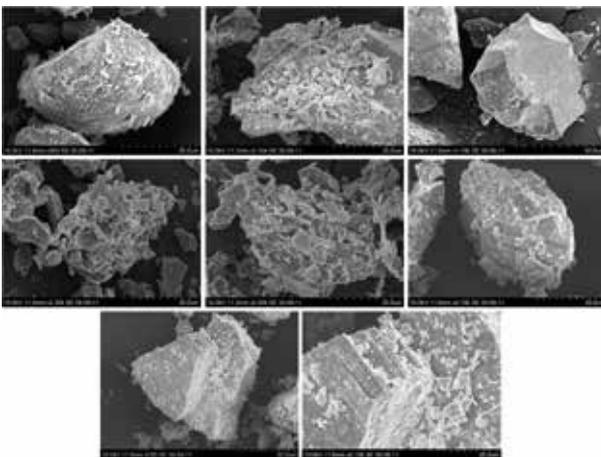
RILEM technical letters : our new OpenAccess Platform

ISSN 2518-0231 ; DOI 10.21809/rilemtechlett

In March 2016, RILEM successfully launched the RILEM Technical Letters and its website. Editor in chief is Prof. Nicolas Roussel with Prof. Pietro Lura as deputy editor in chief in order to ensure smooth interaction between the two RILEM journals. Dr. Mateusz Wyrzykowski (Empa, Switzerland) was appointed as Managing Editor of the new journal. This new journal is devoted to disseminating breakthrough contributions in the field of construction materials science and is published online fully supporting the Diamond Open Access format for RILEM members. Publication costs are indeed sponsored by RILEM and article processing costs are therefore being fully waived for RILEM members. The contributions are short articles (5-6 pages) and the publication process is very fast (about 1 month).

In 2016, RILEM Technical Letters published 20 letters. 18 of them were on invitation whereas 2 were coming from the new submission system. The two 2016 Gustavo Colonnetti medallists were invited to publish a letter. The impact of the letters is steadily increasing with more than 2500 downloads mid-November 2016. It can be noted that, despite the youth of this new journal, the first month download frequency of these letters is already at the same level of the dominant journals of the field, demonstrating, if needed, the power of open access in disseminating information.

The new journal can be consulted and all papers downloaded for free at: letters.rilem.net.



Some selected SEM micrographs of the tested filters; (a) Årdal natural; (b) Årdal (crushed/unwashed); (c) Årdal (crushed/washed); (d) Tau; (e) Jelsa; (f) limestone. Credits: Rolands Cepuritis



"Hemp concrete" obtained by Scanning Electron Microscope (SEM). The "heart" that appears on the photos represents the wood part (hemp) of the bio-based material. Credits: Kamilia Abahri



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

Proceedings, STARs & Recommendations

Besides the journals, RILEM publishes other publications such as proceedings, state-of-the-art reports (STAR), and recommendations. 2016 has been a successful year in this respect, with 13 proceedings, 7 STARs and other reports, and last but not least 10 Recommendations.

List of proceedings published in 2016

Published by RILEM Publications:

- PRO 100: SCC16 - RILEM Self-Consolidating Concrete Conference (2016); Ed. Kamal H. Kayat
- PRO 102 (online version): RILEM Conference on Microorganisms-Cementitious Materials Interactions (2016); Eds. Alexandra Bertron, Henk Jonkers, Virginie Wiktor
- PRO 108: MSSCE 2016 - Innovation of Teaching in Materials and Structures (2016); Ed. Per Goltermann
- PRO 109 (two volumes): MSSCE 2016 - Service Life of Cement-Based Materials and Structures (2016); Eds. Miguel Azenha, Ivan Gabrijel, Dirk Schlicke, Terje Kanstad and Ole Mejlhede Jensen
- PRO 110: MSSCE 2016 - Historical Masonry (2016); Eds. Inge Rörig-Dalgaard and Ioannis Ioannou
- PRO 111: MSSCE 2016 - Electrochemistry in Civil Engineering (2016); Ed. Lisbeth M. Ottosen
- PRO 112: MSSCE 2016 - Moisture in Materials and Structures (2016); Eds. Kurt Kielsgaard Hansen, Carsten Rode and Lars-Olof Nilsson
- PRO 113: MSSCE 2016 - Concrete with Supplementary Cementitious Materials (2016); Eds. Ole Mejlhede Jensen, Konstantin Kovler and Nele De Belie
- PRO 114: MSSCE 2016 - Frost Action in Concrete (2016); Eds. Marianne Tange Hasholt, Katja Fridh and R. Douglas Hooton
- PRO 115: MSSCE 2016 - Fresh Concrete (2016); Eds. Lars N. Thrane, Claus Pade, Oldrich Svec and Nicolas Roussel

Published by Springer:

- 8th RILEM International Symposium on Testing and Characterization of Sustainable and Innovative Bituminous Materials - Vol. 11; Eds. Francesco Canestrari, Manfred N. Partl
- Natural Fibres: Advances in Science and Technology Towards Industrial Applications - From Science to Market - Vol. 12; Eds. Raul Figueiro, Sohel Rana
- 8th RILEM International Conference on Mechanisms of Cracking and Debonding in Pavements - Vol. 13; Eds. A. Chabot, W.G. Buttlar, E.V. Dave, C. Petit, G. Tebaldi

List of STARs published in 2016

- RILEM Recommendations for the Prevention of Damage by Alkali-Aggregate Reactions in New Concrete Structures - State-of-the-Art Report of the RILEM Technical Committee 219-ACS - Vol. 17; Eds. Philip J. Nixon, Ian Sims
- Performance-Based Specifications and Control of Concrete Durability - State-of-the-Art Report RILEM TC 230-PSC - Vol. 18; Eds. Hans Beushausen, Luis Fernandez Luco
- Design Procedures for the Use of Composites in Strengthening of Reinforced Concrete Structures - State-of-the-Art Report of the RILEM Technical Committee 234-DUC - Vol. 19; Eds. Carlo Pellegrino, José Sena-Cruz
- Innovative AE and NDT Techniques for On-Site Measurement of Concrete and Masonry Structures - State-of-the-Art Report of the RILEM Technical Committee 239-MCM - Vol. 20; Ed. Masayasu Ohtsu
- Performance Assessment of Concrete Structures and Engineered Barriers for Nuclear Applications - Conclusions of RILEM TC 226-CNM - Vol. 21; Eds. Valerie L'Hostis, Robert Gens

Other reports published in 2016:

- Petrographic Atlas: Characterisation of Aggregates Regarding Potential Reactivity to Alkalis - RILEM TC 219-ACS Recommended Guidance AAR-1.2, for Use with the RILEM AAR-1.1 Petrographic Examination Method; Eds. I. Fernandes, M.d.A. Ribeiro, M.A.T.M. Broekmans, I. Sims
- Report 45: Repair Mortars for Historic Masonry - State-of-the-Art Report of RILEM Technical Committee TC 203-RHM; Eds. Paul Maurenbrecher and Caspar Groot

Recommendations published in 2016

- Recommendation of RILEM TC 232-TDT: test methods and design of textile reinforced concrete, May 2016
- RILEM Recommendations for the Prevention of Damage by Alkali-Aggregate Reactions in New Concrete Structures - State-of-the-Art Report of the RILEM Technical Committee 219-ACS - Vol. 17; Eds. Philip J. Nixon, Ian Sims (published in the STAR series)



RILEM Honors and Awards

Gustavo Colonnetti Medal

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

In 2016 the awards were granted to Dr. Susan Bernal Lopez and Dr. Ruben Snellings for their respective work on on alkali-activation and on supplementary cementitious materials.



Susan Bernal, University of Sheffield, UK and Ruben Snellings, VITO, Belgium with Nicolas Roussel, RILEM Technical Activities Committee Chair on 24 August 2016 in Lyngby, Denmark. They received their medal and presented their work during the RILEM Technical Day. Videos of their lectures are on RILEM YouTube channel. Credits: Geert De Schutter

RILEM Fellows and Honorary Members

Created in 1993 by the General Council, the honorary title of RILEM Fellow is bestowed upon RILEM Senior members having made exceptional contributions to RILEM in their capacities as research scientist, engineer, technical leader or educator. RILEM also distinguishes Honorary Members. These are persons having 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.

At the General Council in Copenhagen, RILEM fellowship was bestowed on Prof. Caijun Shi. Prof. Mark Alexander, Prof. Yoshiko Ohama and Dr. Roberto Torrent were elected as Honorary Members.

Prof. Caijun SHI

'in recognition of his impressive efforts in editing RILEM special publications and his instrumental efforts in developing RILEM activities in China'. He will receive his award next year in Chennai.

Prof. Mark ALEXANDER

'especially in recognition, during his RILEM presidency, of his continued efforts to promote worldwide international partnership collaboration, living up to his motto "if you want to go far, go together".'



Mark Alexander received totally to his surprise the diploma of Honorary Member from Johan Vyncke on Wednesday 24 August 2016 during the RILEM General Council in Lyngby, Denmark. Credits: Geert de Schutter

Prof. Yoshihiko OHAMA

'in recognition of his lifetime contribution to many RILEM technical committees and for his efforts in promoting close collaboration within the Japanese RILEM Group'.

Dr. Roberto TORRENT

'in recognition, throughout his career, of his technical and management achievements as a RILEM industry representative in assuring good communication between industry and academia, for his considerable contributions to technical committees, and for his efforts as the inaugural Chair of the Development Advisory Committee created in 2013'.



Roberto Torrent with Mark Alexander. Credits: Geert De Schutter

Regional Groups & National Groups

In some regions, a formal RILEM local Regional or National Group has been established to overcome language borders and to encourage and facilitate development of RILEM technical and educational activities on a regional level, in due consultation with the RILEM headquarters in Paris. Currently, RILEM has four local regional groups:

- **LAT-RILEM**, established in 2010, covering the region of Latin America.
- **CIS-RILEM**, established in 2016, covering the region of East Europe & Central Asia.
- **CHN-RILEM**, coinciding with China. This group started as a national group in 2013, and was transformed to a regional group following the recent reorganization of RILEM regions.
- **JPN-RILEM**, established in 2016. The Japanese National group was officially created in Lyngby although Japan has a long-time experience with national RILEM meetings, dating back already before the RILEM Annual Week organized in Japan in 2004.

RILEM National and Regional Groups have some autonomy in developing national and regional activities, within a framework defined by RILEM Bureau and General Council.

For 2016 we are proudly looking back to the launch of CIS-RILEM and the formal incorporation of JPN-RILEM into the renewed international structure of RILEM.

CIS-RILEM Regional Group was successfully launched in an inaugural meeting at the Moscow State University of Design and Technology (MSUDT), Russia, April 2016.

CHN-RILEM was again very active with many symposia, workshops and doctoral courses, and plans for the organization of the RILEM Annual Week in Nanjing in 2019.

LAT-RILEM events on different topics have been organized in Argentina, Brazil and Colombia. Plans have been made to organize future events in other Latin-American countries, including Chile and Mexico.

JPN-RILEM made a proposal for the organization of the RILEM Annual Week in Kyoto in 2022, in cooperation with RILEM partner JCI.



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. The inaugural Assembly was held in parallel with the Congress the International Academy of Engineering, which is an international partner of RILEM. From left to right: Prof. L. Dobshits, Prof. V. Latypov, Prof. V. Stepanova, Mr. J. Vyncke, Prof. V. Falikman, Mr. S. Bronin. Credits: V. Falikman



Photo of the 1st General Assembly of JPN-RILEM at the KKR Hotel Tokyo, on 19 Oct 2016: in the front row, at the center is the President Dr. Sakamoto (BRI), on his left and right are the Vice-Presidents (Prof. Ohama (left) and Prof. Noguchi (right)), and the second from the left is the General Secretary Dr. Nishiyama (BRI). Credits: JPN-RILEM

International Partnerships

During the last five years, RILEM has defined several strategic partnerships with important national and international organizations. These partnerships are very helpful to exchange organizational, technical and educational information, in view of a most optimal spread of state-of-the-art information concerning construction and building materials all over the world. A list of current international partnerships is given hereafter, with the contact person. In 2016 particular close collaboration was developed with ACI, *fib*, IEA and KCI.



↘ American Concrete Institute, ACI (Ron Burg)

In March 2017, RILEM will organize its Spring Meetings in Detroit, USA in conjunction with the ACI Spring Convention.



↘ Indian Concrete Institute, ICI (Manamohan R. Kalgal)



↘ Concrete Institute Australia, CIA (David Millar)



↘ International Academy of Engineering, IEA (Vyatcheslav Falikman)

Several meetings were held in 2016 with the IEA President Boris Gusev and with the RILEM IEA representative.



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

RILEM and *fib* identified several topics where they will work together in the future:

- Sulphate and sulphide in grout for prestressing tendons
- Robustness (as part of a joint group within the Liaison Committee¹)

Collaboration is also planned in the context of a number of specific RILEM TCs and *fib* Task Groups. To mention a few :

- SIF - Surface delamination of concrete industrial floors
- RAC - Structural behaviour and innovation of recycled aggregate concrete
- CIM - Benchmarking Chloride Ingress Models on Real-life Case Studies: Theory and Practice
- CCH - Stress Corrosion Cracking and Hydrogen Embrittlement of Concrete-Reinforcing Steels



↘ International Society for Asphalt Pavements, ISAP (Gabriele Tebaldi)



↘ Japan Concrete Institute, JCI (Kyuichi Maruyama)



↘ Korean Concrete Institute, KCI (Hyun Mock Shin)



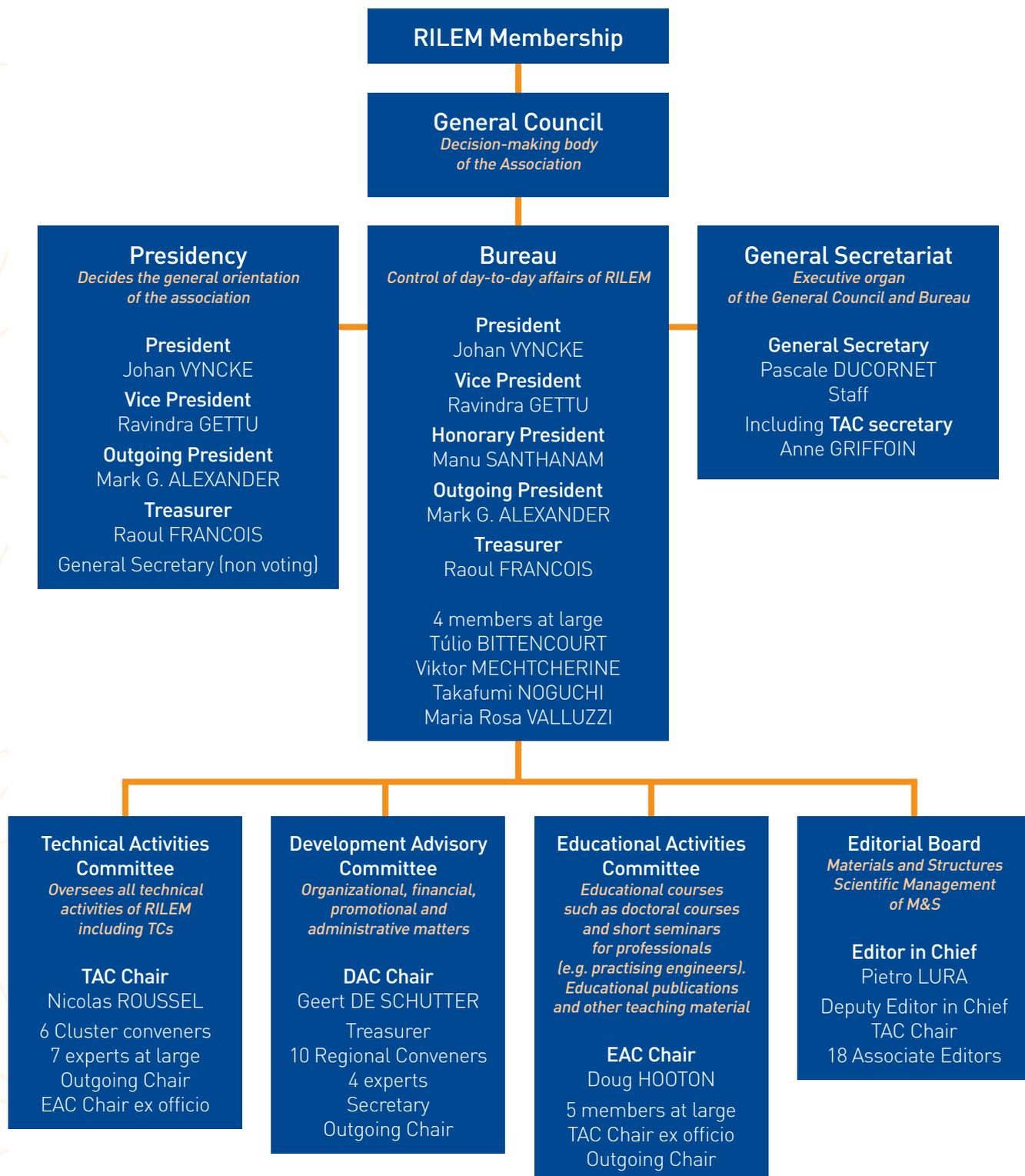
↘ Brazilian Concrete Institute, IBRACON (Enio Pazini Figueiredo)



↘ New Zealand Concrete Society, NZCS (Michael Khrapko)

¹ The Liaison Committee is a body initiating contact between international associations of civil engineering. Formed in 1958, it brings together the following associations: CIB - International Council for Research and Innovation in Building and Construction, ECCS - European Convention for Constructional Steelwork, *fib* - International Federation for Structural Concrete, IABSE - International Association for Bridge and Structural Engineering, IASS - International Association for Shell and Spatial Structures, and RILEM - International Union of Laboratories and Experts in Construction Materials, Systems and Structures.

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The RILEM would like to thank all contributors who made this 2016 Annual Report possible.

Upcoming major events for 2017 and beyond

RILEM Spring Meetings 2017

At the kind invitation of ACI, the RILEM Spring meetings 2017 will be held in conjunction with the ACI Convention in Detroit, USA in March 2017.

RILEM Annual Week 2017

The 71st RILEM Annual Week will be held in conjunction with the International Conference on Advances in Construction Materials and Systems on 3-8 September 2017 in Chennai, India.

Future RILEM Events

	Spring Event	Annual Week
2017	ACI-RILEM Joint Event, Detroit, USA	Chennai, India
2018	Barcelona, Spain	Delft, Netherlands
2019	Rovinj, Croatia	Nanjing, China
2020	Call in fall 2016	Sheffield, UK
2021	Paris, France	Call in fall 2016
2022	Call in fall 2017	Kyoto, Japan

Technical Committee CHA, Semi-circular Bending Test on a sample with self-healing purposes.

Credits: Laboratory of Materiales (LabMAT), University of Bío-Bío, Chile.



Secretariat General

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