

RILEM Week - Chennai, September 8<sup>th</sup> 2017

**Luigia Binda Memorial Workshop on  
Non-Destructive Testing and Safety Assessment of RC and Masonry Structures**

Organized by

Manu Santhanam<sup>1</sup>, Denys Breysse<sup>2</sup>, Maria Rosa Valluzzi<sup>3</sup>, Arun Menon<sup>4</sup> and Jean-Paul Balayssac<sup>4</sup>

<sup>1</sup> IIT Madras, Chennai, India, [manus@iitm.ac.in](mailto:manus@iitm.ac.in)

<sup>2</sup> University of Bordeaux, France, [d.breysse@izm.u-bordeaux1.fr](mailto:d.breysse@izm.u-bordeaux1.fr)

<sup>3</sup> University of Padua, Italy, [valluzzi@dicea.unipd.it](mailto:valluzzi@dicea.unipd.it)

<sup>4</sup> IIT Madras, Chennai, India, [arunmenon@iitm.ac.in](mailto:arunmenon@iitm.ac.in)

<sup>5</sup> University of Toulouse, France, [jean-paul.balayssac@insa-toulouse.fr](mailto:jean-paul.balayssac@insa-toulouse.fr)

The assessment of existing buildings is a common problem for the engineering industry, with the aim of general condition assessment or specific problems, such as strength assessment or ageing mechanisms (corrosion, effect of water or humidity...).

It is common to distinguish between heritage structures, which may have a high cultural value and are made of traditional materials (earth, brick or stone masonry, wood, etc.) and recent structures, where concrete / reinforced concrete (RC) is the most common material. Apart from the fact that some RC buildings now belong to our heritage, this separation is disputable, since many common issues can be addressed in all these structures:

- The deterioration mechanisms are relevant for most materials and structures, and the effect of water/humidity is among the main problems;
- Similar types of investigation techniques can be used, this being particularly true for non-destructive techniques (NDT) where ultrasonic velocity, surface rebound, electric or electromagnetic methods can be applied, whatever the context; and
- Addressing the material condition on the one hand and providing quantitative information in order to allow structural calculations on the other are common to both heritage structures and more recent ones.

Both domains encounter the same kind of scientific challenges:

- How can a comprehensive and consistent approach be developed in order to deliver a conclusion with a given level of reliability?
- How and when can different investigation methods be combined?
- How can NDT test results be processed in order to derive quantitative information about material properties?
- How can the number of tests (both non-destructive and destructive) be reduced as much as possible, while controlling the reliability of assessment?

The workshop aims to be a platform for discussion these pertinent issues in detail. Different types of contributions are expected:

- Case studies of investigation and assessment of existing structures;
- Comparison of techniques or approaches, with respect to the quality of assessment;
- Analysis of influencing factors and examples of “good practice”; and
- Proposition of guidelines and evolution of standards in the domain.

The workshop will also be an avenue for experts from the RILEM Technical Committee ISC-249 (In-situ strength assessment of concrete) to explain how recent scientific developments have led to methodological improvements. The guidelines issued by this RILEM TC will be presented and discussed.

*This workshop is being held in memory of Prof. Luigia Binda, Honorary Member of RILEM who passed away on 3<sup>rd</sup> December 2016. Prof. Binda's pioneering work in the area of diagnostic investigations for heritage structures has left a lasting influence and inspiration in the field of assessment of structures.*

## Workshop Schedule

08 September 2017		
0830	0900	<b>Registration</b>
0900	0945	<b>Inauguration and Memorial Lecture</b> <i>Prof. Marco di Prisco, Dept. of Civil &amp; Env. Engineering, Milan Polytechnic, Italy</i> Contributions of Prof. Luigia Binda Chairperson: Manu Santhanam
0945	1100	<b>Session 1: Common Engineering Practice in Assessment of Existing Structures</b> Chairperson: Denys Breyse
0945	1015	Speaker 1: Andrzej Moczko, Wroclaw Univ. Science and Technology, Poland Engineering experience in NDT assessment of existing concrete structures
1015	1045	Speaker 2: K. Balasubramanian, Hitech Concrete Solutions Chennai Pvt. Ltd. Current concrete NDT practices in India
1045	1115	<b>Discussion</b>
1115	1130	<i>Tea break</i>
1130	1300	<b>Session 2: Development of Techniques</b> Chairperson: Maria Rosa Valluzzi
1130	1200	Speaker 1: Jean-Paul Balayssac, LMDC, INSA-UPS, Toulouse, France Improvement of usual NDT methods for characterization of concrete reinforcement
1200	1230	Speaker 2: Abhijit Ganguli, IIT Tirupati Non-destructive evaluation of concrete through ultrasonic array-based imaging
1230	1300	<b>Discussion</b>
1300	1400	<i>Lunch</i>
1400	1445	<b>Invited Lecture</b> <i>Prof. Antonio Arede, Faculty of Engineering, University of Porto, Portugal</i> Challenges for Assessment of Heritage Structures Chairperson: ...
1445	1615	<b>Session 3: Development of Methodologies and Combination of Tests</b> Chairperson: Arun Menon
1445	1515	Speaker 1: Maria Rosa Valluzzi, Elvis Cescatti, Giuliana Cardani, Lorenzo Cantini, Luigi Zanzi, Camilla Colla, Elena Gabrielli, Filippo Casarin Calibration of sonic pulse velocity tests for detection of variable conditions in masonry walls
1515	1545	Speaker 2: Samuele Biondi, N. Cataldo, L. Zuccarino, Univ. Pescara, Italia NDT tests on an existing r.c. bridge: how to manage different test campaigns
1545	1615	<b>Discussion</b>
1615	1630	<i>Tea</i>
1630	1800	<b>Session 4: Towards Standards and Improved Structural Calculations</b> Chairperson: Jean-Paul Balayssac
1630	1700	Speaker 1: Denys Breyse, I2M, Univ. Bordeaux, France Strength assessment in RC structures: from research to RILEM recommendations
1700	1730	Speaker 2: Arun Menon, IIT Madras, India Strength assessment in masonry structures
1730	1800	<b>Discussion</b>
1800	1830	<b>Workshop Recommendations and Closure</b> Chairperson: Manu Santhanam