

# VI Simpósio de Inspeção, Manutenção e Monitoramento de Estruturas Metro-ferroviárias, Rodoviárias e Hidroviárias

## 6<sup>th</sup> Symposium on Inspection, Maintenance and Monitoring of Subway, Railway, Highway and Waterway Infrastructures

(together with 62<sup>th</sup> Brazilian Congress on Concrete)

Florianópolis – Santa Catarina – Brazil  
01 - 04 September, 2020

Organized by:



Institutional Support:



## **1 – INTRODUCTION**

The emergence of new technologies for structural monitoring and rehabilitation in infrastructure (hydroways, highways, subways and railways), with incorporation of modern Computer Science tools for data optimization and management, was the key factor for the organization of the 6th Symposium on Inspection, Maintenance and Monitoring of Subway, Railway, Highway and Waterway Infrastructures. This year's event is a result of the joint organization of IABMAS (International Association for Bridge Maintenance and Safety) Brazilian Group and the Brazilian Concrete Institute - IBRACON. The event will be held in parallel to the 62nd Brazilian Concrete Congress, in Florianópolis- SC, from September 01st to 4th, 2020.

IBRACON is promoting the 6th Symposium on Inspection, Maintenance and Monitoring of Subway, Railway, Highway and Waterway Infrastructures aiming to discuss the technical advances and recent developments occurred in Brazil and in the rest of world in this area. There is a strong motivation for the rehabilitation of existing structures due to the enormous economic and social impact caused by their degradation over time. At the present, researches in this area have been concentrated on alternatives for inspections using non-destructive tests and non-invasive techniques, incorporating complex data analysis with the aid of artificial intelligence for structural health monitoring.

IBRACON, which is an organization for the defense and appreciation of civil engineering aims to carry out its objective of disseminating modern and up to date design techniques to improve Brazilian infrastructure system.

We acknowledge and appreciate the support of the Organizing Committee and the Technical Scientific Committee of 62nd Brazilian Congress on Concrete.

Túlio Nogueira Bittencourt

## **2 – TOPICS**

1. Bridges
2. Underground Stations and Tunnels
3. Pavements
4. Structural Life Cycle
5. Safety and Serviceability,
6. Structural Health Monitoring
7. NDT – Non Destructive Testing,
8. Weigh in Motion Systems.
9. Retrofit and Reinforcement Systems (CFRP, High Performance Concretes)
10. Monorail Structural Systems
11. Harbor Structural Systems
12. Waterway, Cannals, Sluices

### **3 – IMPORTANT DATES**

Abstracts Submission	10/03/2020
Abstracts Approval	24/03/2020
Full Papers Submission	04/05/2020
Revisions Notification	08/06/2020
Papers Revision Submission	19/06/2020
Papers Final Approval	03/07/2020
Event	01 - 04/09/2020

### **4 – KEYNOTES SPEAKERS**

**Branko Glisic- Princeton Institute for International and Regional Studies,  
Princeton University**

**Hani Nassif– Rutgers School of Engineering**

### **5 – ORGANIZATION**

#### **ORGANIZED COMMITTEE**

Túlio Nogueira Bittencourt  
*POLI – USP*

Marcos Massao Futai  
*POLI – USP*

Thomaz Eduardo Teixeira Buttignol  
*FEC – UNICAMP*

Juliana Ferreira Fernandes  
*POLI – USP*

## SCIENTIFIC COMMITTEE

Ademir Santos

Ana Elisabete P. G. A. Jacintho

André Beck

Audrey Gregori

João Luís Casagrande

José Luiz Antunes de Oliveira e Sousa

José Tadeu Balbo

Júlio Timerman

Juliana Ferreira Fernandes

Leandro Trautwein

Leila Cristina Meneghetti Valverdes

Luiz Carlos Pinto da Silva Junior

Luiz Carlos de Almeida

Massao Futai

Michele Pfeil

Mounir El Debs

Rafael Timerman

Ricardo Carrazedo

Roberto Daledone Machado

Roberto Pinto

Rodrigo Moyses

Romilde Oliveira

Ronaldo Battista

Rui Calçada

Sérgio Hampshire C. Santos

Vladimir Haach

Wayne Assis

Thomaz Eduardo Teixeira Buttignol

## 6 – SCHEDULE

Scientific Papers oral presentations.

Wednesday 02/09/2020				
10:30 - 12:30	12:30 - 14:00	14:00 - 16:00	16:00 - 16:30	16:30 - 18:00
6th Symposium on Inspection, Maintenance and Monitoring of Subway, Railway, Highway and Waterway Infrastructures	Lunch	6th Symposium on Inspection, Maintenance and Monitoring of Subway, Railway, Highway and Waterway Infrastructures	Coffee Break	6th Symposium on Inspection, Maintenance and Monitoring of Subway, Railway, Highway and Waterway Infrastructures

## **7 – SHORTCOURSE**

Short Course on Structural Health Monitoring - SHM

### **Dates:**

August, 31<sup>th</sup> and September 01<sup>st</sup>, 2020

### **Duration:**

18 hours

### **Summary:**

The increasing volume of information gathered by sensors and stored in mainframes requires new techniques for data analysis based on Computer Science. New technologies were developed for structural health monitoring, including wireless sensors and optic fibers. This short course aims to introduce and discuss some of these new technologies, including sensors instrumentation, systems integration and data interpretation to detect and prevent structural damage of existing structures. Some results of bridges monitoring are described, together with the state of the art, current limitations and challenges imposed by the new monitoring techniques. The integration of the variety of monitoring systems allows a real time structural analysis, enabling the development of predictive maintenance strategies, reducing the risk of collapse and increasing structural lifetime.

### **Lecturers:**

Branko Glisic – Princeton University

Hani Nassif– Rutgers School of Engineering

Túlio Nogueira Bittencourt – University of São Paulo

## **8 – Institutional IBRACON**

IBRACON, the Brazilian Concrete Institute is an international techno-scientific organization for the defense and appreciation of engineering. IBRACON aims to provide more knowledge in the field of concrete through courses, events, publications, certification, technological and scientific meetings, incentives for research and scientific and technological research and its dissemination to all the professionals and actors in the concrete industry and construction in the areas of materials technology, design, management, control, architecture, structures and buildings.

## **IBRACON BOARD MEMBERS:**

### **Diretor Presidente**

Paulo Helene

### **Diretor 1º Vice-Presidente**

Julio Timerman

### **Diretor 2º Vice-Presidente**

Enio José Pazini Figueiredo

### **Diretor 1º Secretário**

Cláudio Sbrighi Neto

### **Diretor 2º Secretário**

Carlos José Massucato

### **Diretor 1º Tesoureiro**

Julio Timerman

### **Diretor 2º Tesoureiro**

Hugo Armelin

### **Diretora de Marketing**

Jéssika Pacheco

### **Diretor de Publicações**

Guilherme Parsekian

### **Diretor de Eventos**

Rafael Timerman

### **Diretor Técnico**

José Tadeu Balbo

### **Diretor de Relações Institucionais**

Cesar Henrique Daher

### **Diretor de Cursos**

Leandro Moura Trautwein

### **Diretora de Atividades Estudantis**

Jéssica Andrade Dantas

### **Diretor de Certificação de Pessoal**

Adriano Damasio Soterio

### **Diretor de Pesquisa e Desenvolvimento**

Bernardo Tutikian