

IAEE Initiative

## “Masters” Program Meet / Greet 2020

James O. JIRSA  
(USA)

The 17th World Conference on  
Earthquake Engineering  
Sendai, Japan  
September 14-17, 2020

*Engineering is a collaborative effort.*

*Our projects succeed because we have  
had help and gained perspective from  
our teachers, mentors, students,  
colleagues and friends.*

*Always remember and acknowledge  
that help.*

Edited and Issued by:  
IAEE Central Office, Tokyo, Japan  
(the International Association for Earthquake Engineering)

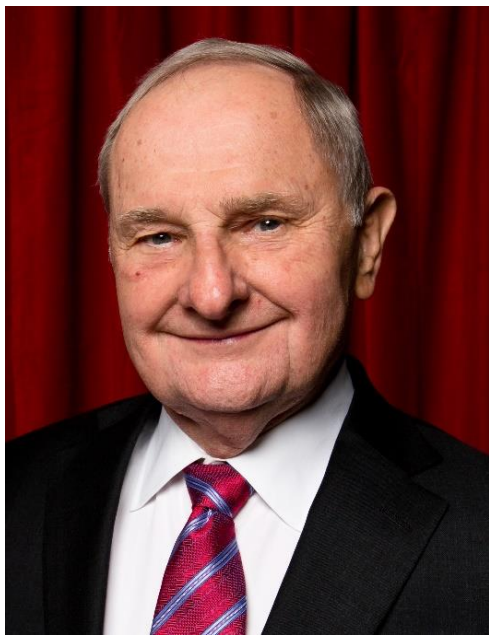
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**A** great engineer is a person of eminent scientific and technological knowledge and seasoned professional judgement whose value is in proportion to his/her in solving societal problems in practice. Professor James O. Jirsa fulfills, like very few others, this set of characteristics and performance. Jim is also as an exemplary person. His warmth and personal commitment to his students and colleagues is, from all of us, highly regarded. Jim is a true role model in the fullest sense of the concept. Jim is a master.

**F**or more than 55 years, Dr. Jirsa has had a long and distinguished career. He has been at the forefront of structural and earthquake engineering by making outstanding contributions to concrete research and design. Most notably, his contributions to reinforced concrete include his work in slabs, shear, bond and development length, and the seismic strengthening of reinforced concrete elements and systems. In all his research, the primary object of his design approach has been to obtain safe, serviceable and economical structures.

**D**r. Jirsa's brilliant career as an eminent engineering teacher and researcher that IAEE celebrate during the 17WCEE is not a surprise.

Dr. Sergio Manuel ALCOCER  
the National Autonomous University of Mexico (UNAM)



Development of design provisions for joints in RC structures subjected to seismic deformations

**B**eam-column joint behavior is one of the most complex of any building component. Subjected to large inelastic deformation reversals, the joint should be capable of resisting axial, flexural, shear, torsion and bond demands without exhibiting significant stiffness loss and energy dissipation capacity. Dr Jirsa's seminal work led to a deeper understanding on the resisting mechanisms, role of joint transverse reinforcement, the impact of transverse beams and floor slabs (see photo below), concrete compressive strength, as well as on the adequacy of retrofitting techniques of concrete joints. His contributions led to design code requirements used worldwide.

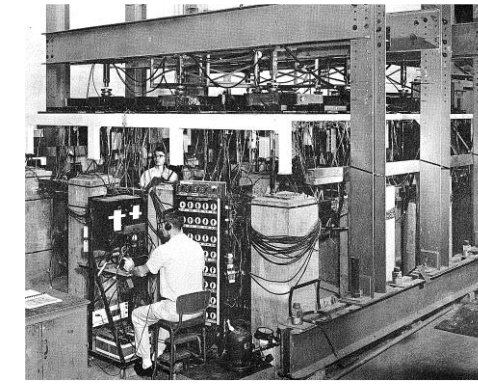


Research on techniques for strengthening existing RC structures in seismic zones

**T**he large building stock at risk in seismic zones demands implementation of pre- or post-event repair and strengthening programs. Aimed at developing and understanding sound and practical techniques, Dr. Jirsa's research work focused on:

**a.** connections between existing concrete and new concrete or new steel members; **b.** local upgrading techniques (e.g., member jacketing with concrete, steel plates and FRP); and **c.** addition of new structural systems (e.g., new concrete walls, steel bracing -see photo below-).

**H**is pioneering contributions have been implemented on the rehabilitation of existing buildings and on manuals, guides and standards for seismic rehabilitation worldwide.



**W**hen he began teaching at Rice University in 1965, he became interested in the behavior of structures under earthquake effects and began a study of hinging regions in concrete structures. In 1972, at the University of Texas, he extended his work to the behavior of beam column joints. The specimens were subjected to reversed loading to failure that required days to complete because of the limitations of available loading systems.

**H**e began his research career in 1960 at the University of Illinois working with Prof. Mete Sozen on a project related to design of floor slab systems. He supervised a 1/4-scale, 9-panel structure tested to failure. At the time, the instrumentation was the most advanced available and required nearly 30 minutes to read 300 strain gages. The study of structural behavior through physical tests was to become a lifelong approach to improving structural design.



Seminar on Repair and Retrofit of Structures, Tsukuba, Japan 1987

**H**is first attendance at a WCEE meeting was in New Delhi in 1977. It was memorable experience meeting so many of the eminent earthquake engineers from all over the world. For the next 40 years, he attended nearly every WCEE. Those contacts led to cooperative research projects with colleagues in Japan, New Zealand, Canada, Mexico, and Turkey.

#### Educations:

- 1960 University of Nebraska, BSCE
- 1962 University of Illinois, MSCE
- 1963 University of Illinois, Ph.D. in Civil Engineering

#### Work Experiences:

- 1964-65 Asst. Professor of Civil Engineering, Univ. of Nebraska
- 1965-71 Assistant and Associate Prof. of Civil Eng., Rice Univ.
- 1972-2017 Assoc. Prof. and Prof., The Univ. of Texas at Austin
- 1985-88 Director, Ferguson Struct. Eng. Lab., UT Austin
- 1996-2001 Chairman, Civil Eng. Dept., UT Austin
- 2017-date Professor Emeritus, UT Austin

#### Professional Services:

- American Concrete Institute, President 2000-2001, Honorary Member 2008
- ACI 318, Standard Building Code, Member, 1982-2019
- American Society of Civil Engineers, Chair, Structural Division Committee on Concrete and Masonry Structures, 1978-82
- Distinguished Member 2017
- EERI, Board of Dir. 1997-2000, Honorary Member 2010

#### Awards:

- 1970, 1977 & 1991 Raymond C. Reese Award for Research, ASCE
- 1977 Wason Medal for Most Meritorious Paper, American Concrete Institute
- 1977 & 1979 Raymond C. Reese Structural Research Award, American Concrete Institute
- 1980 Japanese Soc. for Prom. of Sci. Res. Award
- 1988 US National Academy of Eng., Member
- 1997 Russian Academy of Architecture and Construction Sciences, Foreign Member
- 2008 Chester Paul Siess Structural Research Award, American Concrete Institute
- 2008 Mexican Academy of Eng., Foreign Member

#### Selected works:

- Development of design provisions for joints in RC structures subjected to seismic deformations.
- Research on techniques for strengthening existing RC structures in seismic zones.