



IIT Gandhinagar



WORKSHOP ON Analysis and design of seismically isolated structures

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Collaborating with IITGN to
develop seismic isolators



COMPUTERS & STRUCTURES, INC.
STRUCTURAL AND EARTHQUAKE ENGINEERING SOFTWARE

February 27 – 28, 2023

About **Workshop**

Buildings and other structures in a large part of India are vulnerable to moderate to severe earthquake-induced shaking. Facilities such as civil and military command centers, important government offices, communication centers, hospitals, schools and data centers are required to not just withstand earthquakes, but also function in the immediate aftermath of a severe earthquake. Many other facilities, such as important business centers and commercial establishments may like to minimize their financial losses and downtime due to earthquakes. Seismic isolation technology can help achieve these goals. Besides, there may be safety-critical structures, for example, nuclear power plants, wherein seismic isolation can play a significant role in systematically reducing the earthquake loads thereby reducing the risk of an accident and enabling a standardization of the design of key components.

This workshop seeks to discuss the fundamental concepts of seismic isolation, and topics related to analysis and design of seismically isolated structures in accordance with the relevant Indian and American standards. Some discussions related to the feasibility of seismic isolation in India, seismic isolation of nuclear structures, and development of seismic isolation bearings in India will also be presented. Engineers, students, and academicians are invited to attend the workshop. Participants are encouraged to come in groups so that they can more effectively utilize the hands-on training session on analysis and design of isolated structures, and isolation systems.

Speakers



Sudhir K Jain
Vice Chancellor
Banaras Hindu University



Andrew S Whittaker
SUNY Distinguished Professor
University at Buffalo



Durgesh C Rai
Professor
IIT Kanpur



Manish Kumar
Assistant Professor
IIT Bombay



Manish Kumar
Associate Professor
IIT Gandhinagar

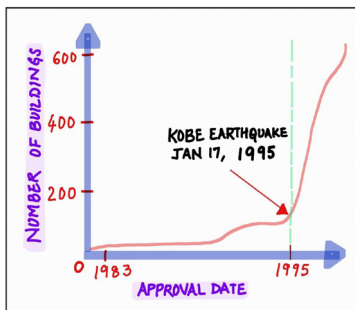
Following experts will join the panel discussions.



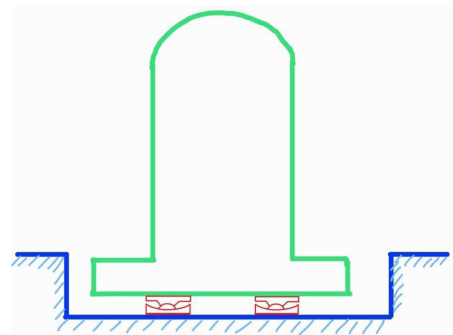
Tushar K Dutta
Adjunct Professor
MNIT Jaipur



Vasant Matsagar
Dogra Chair Professor
IIT Delhi



Number of seismically isolated buildings in Japan*



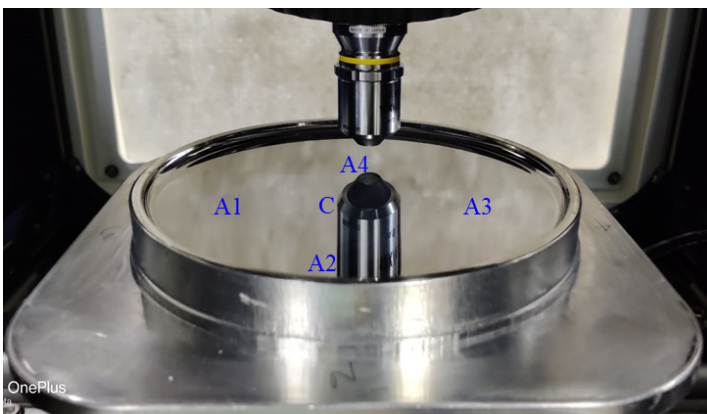
Schematic of a critical structure seismically isolated*



Apple's building in California isolated using sliding bearings (source: New York Times)



A building at IIT Guwahati campus isolated using rubber bearing



Sliding surface of the single surface sliding bearing developed at IIT Gandhinagar



View of the interior of a lead rubber bearing (source: MCEER-07-0012)

*Art: Maitreyee Tiwari

February 27, 2023 | Day 1

9:00 - 9:30 AM	Introduction and welcome	
9:30 - 10:30 AM	Earthquake engineering practice in India - Potential for application of seismic isolation	Sudhir K Jain
11:00 AM - 12:00 noon	Fundamental of seismic isolation, and an overview of Indian design provisions on seismic isolation	Manish Kumar (IITB)
12:30 - 1:30 PM	Design provisions for seismically isolated regular and nuclear structures in the United States	Andrew S Whittaker
Lunch Break		
2:30 - 3:30 PM	Design of a six-story RC frame building using Friction Pendulum Bearings - 1	Manish Kumar (IITGN)
4:00 - 5:00 PM	Design of a six-story RC frame building using Friction Pendulum Bearings - 2	Manish Kumar (IITGN)
5:30 - 6:30 PM	Design of a six-story RC frame building using Lead Rubber Bearings	Manish Kumar (IITB)

February 28, 2023 | Day 2

9:00 - 10:00 AM	Applications of seismic isolation in India	Durgesh C Rai
10:30 - 11:30 AM	Seismic isolation of nuclear structures	Manish Kumar (IITGN)
12:00 - 1:00 PM	Seismic isolation as a potential solution to climate change	Andrew S Whittaker
Lunch Break		
2:00 - 5:00 PM	Hand-on session on the design of isolation system	Manish Kumar (IITGN) Manish Kumar (IITB) Andrew S Whittaker
5:30 - 6:30 PM	Feedback and farewell	

CONTACT US

Manish Kumar | mkumar@iitgn.ac.in

WORKSHOP LINK

events.iitgn.ac.in/2023/seismic_isolation

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