



**SPARC online lecture series**  
*on*

## **Magnetorheological Fluids (MRF): Characterization, Modeling and Application**

**8<sup>th</sup> - 12<sup>th</sup> September, 2022**

Sponsored by



Scheme for Promotion of Academic and Research Collaboration



## **Course Instructor**

**Prof. Ramin Sedaghati**



Dr. Ramin Sedaghati is currently full professor of Mechanical Engineering in the Department of Mechanical, Industrial and Aerospace Engineering at Concordia University and also Concordia Research Chair (CURC-Tier 1) in smart materials and adaptive structure. He received his PhD in mechanical engineering from University of Victoria, BC, Canada in 2000. Following his PhD study, Dr. Sedaghati was awarded Natural Science and Engineering Research Council of Canada (NSERC) post-doctoral fellowship and worked in Canadian Space Agency, John. H. Chapman Space Center in Quebec. Dr. Sedaghati is director of smart materials and adaptive structure lab (SMASL) at Concordia University and his main research activities include smart materials particularly magnetoactive materials, adaptive structures, adaptive vibration absorbers and isolators, magnetoactive soft robots, active vibration control and structural optimization. He has supervised over 12 PhDs, 30 PhDs, 40 Masters and 100 UG students and published over 140 journal articles and 150 conference papers and technical reports. He is the Fellow of CSME, Fellow of ASME and Associate Fellow AIAA and serves as an associate editor of Journal of Intelligent Material Systems and Structures. He is also on the editorial board of number of journals including Vibration and Actuators and served as the general chair of 30th International Conference on Adaptive Structures and Technologies (ICAST2019), one of the oldest and well-known conference in the area of smart materials and adaptive structures.

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## **Course coordinators**

Dr. Sujatha Chandramohan  
Professor,  
Dept. of Mechanical Engineering,  
IIT Madras

Dr. Hemantha Kumar  
Associate Professor,  
Dept. of Mechanical Engineering,  
NIT Karnataka

## Session details

September 8 <sup>th</sup> 2022 3:30 PM - 6:00 PM	Introduction to smart controllable ER and MR fluids
September 9 <sup>th</sup> 2022 3:30 PM - 6:00 PM	Phenomenological modeling of MR Fluid behavior and MR based devices
September 10 <sup>th</sup> 2022 3:30 PM - 6:00 PM	Physics based modeling of MR fluid Dampers (quasi-static approach)
September 11 <sup>th</sup> 2022 3:30 PM - 6:00 PM	Design optimization of MR fluid Dampers and semi-active control strategies
September 12 <sup>th</sup> 2022 3:30 PM - 6:00 PM	MR fluid brakes: Overview, modeling And optimization

## Who can apply?

UG, PG, Ph.D. Scholars, Faculty & Professionals from various  
Academic / Research Organizations and Industries.

Maximum seats: 100 on first cum first served basis

## Certification

E-Certificates shall be issued to the registered participants approved  
by the coordinator, provided the participant obtains at least 80%  
attendance in the lecture series.

## Registration

**No Registration Fee**

**Last date for registration is 7<sup>th</sup> September 2022**

## How to apply?

Participants who are interested in attending  
this program need to make compulsory online  
registration on the below mentioned link or by  
by scanning the given QR code.

<https://forms.gle/QQc4a33uEUWTXYxs8>



## SPARC

The Scheme for Promotion of Academic and Research Collaboration (SPARC) aims at improving the research ecosystem of India's Higher Educational Institutions by facilitating academic and research collaborations between Indian Institutions and the best institutions in the world from 28 selected nations to jointly solve problems of national and international relevance.

## IIT Madras

IIT Madras, an Institute of Eminence (IoE), is among the country's pre-eminent institutes known both nationally and internationally for excellence in technical education, basic and applied research, innovation, entrepreneurship and industrial consultancy. A faculty of international repute, a highly motivated and brilliant student community, excellent technical and supporting staff and an effective administration have all contributed to the pre-eminent status of IIT Madras. IIT Madras has been the top-ranked engineering institute in India for four consecutive years as well as the 'Best Educational Institution' in Overall Category in the NIRF rankings of 2019 put out by the Ministry of Human Resource Development

## NIT Karnataka

National Institute of Technology Karnataka (NITK), Surathkal has established itself as one of the top technological institutes in India and is recognized as an institute of National importance. The Institute has ranked at ranked 10 in NIRF ranking 2022. The Institute is considered a premier center engaged in imparting quality technological education and providing support to research and development activities.

## Concordia University

Concordia University is a next-generation university, continually reimagining the future of higher education. Located in the vibrant and multicultural city of Montreal, Concordia is the top-ranked university in North America founded within the last 50 years and annually registers some 51,000 students through its innovative approach to experiential learning and cross-functional research.

## For queries contact:

Sachin Kumar (+91 87 89 599 578)

Email: [me19d414@smail.iitm.ac.in](mailto:me19d414@smail.iitm.ac.in)

P Devikiran (+91 9032390251)

Email: [devikiranpro@gmail.com](mailto:devikiranpro@gmail.com)