

Volume 10, No. 1

January 2018



Objectives and Activities

The main objective of AMM is to contribute to mechanical design at all levels starting from academic research to industrial initiatives, thereby enhancing the quality and reliability of indigenous machines. With this in view, AMM organises the International & National Conference on Machines and Mechanisms, iNaCoMM, and the workshops on Industrial Problems on Machines and Mechanisms, IPRoMM regularly.

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Message from the Editor-in-Chief

December 2017 witnesses a number of happenings in the Association for Machines and Mechanisms (AMM). Successfully the iNaCoMM-2017 is held at Bhabha Atomic Research Centre (BARC), Mumbai from 13th to 15th December 2017. The Office Bearers of the Association for Machines and Mechanisms (AMM) are also having changes. New Secretary, Vice President and Treasurer are elected. However, the Editorial Board remains the same for the year 2018. The Editorial Board heartily wishes to thank the past Office Bearers, and **Dr. G. Saravana Kumar, the Secretary**, in particular, for their active support to bring out the Bulletin of the AMM. The Editorial Board also welcomes the New Office Bearers taking charge to run the AMM with **Prof. Pushparaj Mani Pathak as its Secretary.** It goes without saying that re-election of **Prof. C. Amarnath as the President** would guide the AMM in right direction.

Bulletin of the AMM **Volume 10, No. 1, January 2018** issue is being published in the New Year 2018. Dr. Shankar Sehgal, Zonal Vice President (North) has taken due steps to bring out this issue in time. However, the Editor-in-Chief is to blame for the delay in its publication.

Minutes of the General Body Meeting 2017 of the AMM and the Proceedings of the iNaCoMM-2017 held at BARC, Mumbai is included in this issue. Detail of the Award obtained by Prof. B.V.A. Rao is also placed in this issue. Brochures of forthcoming events are there as usual.

AMM members and other interested persons are requested to contribute articles and send the same to the editorial team for April 2018 issue. Constructive suggestions, comments for improvement of the Bulletin of the AMM are requested.

On behalf of the Editorial Team of the Bulletin of AMM, I thank all concerned for their support, good wishes and suggestions for bringing out of this Bulletin.

Hope you all the Best New Year 2018!

Prof. Santanu Das Editor-in-Chief

About the Association of Machines and Mechanisms (AMM)

The AMM headquarter is currently located at the Department of Engineering Design, IIT Madras. A new set of office bearers have taken charge of the affairs of AMM. AMM invites both individual and corporate membership from Indian academia, research organizations and industry. Membership benefits and other information about AMM are available at www.ammindia.org. The body of Zonal Vice Presidents (ZVPs) is active over the past several years with representations from the four corners of the country. They are playing the role of nodal agencies so as to decentralise the AMM official activities and to organise workshops under the aegis of AMM to popularise the mechanism science in their respective regions. They also form the editorial team of this news bulletin. AMM invites contributory articles from its members and others working in the various fields of mechanisms science for this quarterly news bulletin. Interested people can contact the editorial team.

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One best book is equal to hundred good friends but one good friend is equal to a library.

--- Dr. A. P. J. Abdul Kalam

Minutes of the AMM General Body Meeting (GBM) held on December 13, 2017

The AMM General Body Meeting (GBM) for the year 2017 was conducted on December 13, 2017, at HBNIT, BARC, on the side-lines of the conference iNaCoMM 2017. A total of twenty one members attended the meeting. The summary of the discussions are documented below as per the original agenda items.

- 1. Presentation of report of activities by the Secretary.
- 2. Presentation of statement of accounts by the Secretary on behalf of Treasurer.
- 3. Election of the next group of office bearers (i.e., President, Vice-President, Secretary, Treasurer).

The nominations received for the posts were:

President: Prof. C. Amarnath, (Prof. Emeritus), IIT Bombay. Vice-President: Prof. G K Ananthasuresh, IISc Bangalore Secretary: Prof. Pushparaj Mani Pathak, IIT Roorkee

Treasurer: Prof. Sourav Rakshit, IIT Madras

The candidates were elected unanimously by the attendees.

4. Discussions / declarations on the next venue for iNaCoMM (Dec 2019) and IPRoMM (Dec 2018).

Expression of interest was invited from interested institutions to host the above events. Since Asian MMS shall be held in Bangalore by IISc Bangalore during December 2018, it was decided to hold IPRoMM 2018 as a pre/post conference event of Asian MMS by an institute in Bangalore. Dr. Rajeevlochana G Chittawadigi from Amrita School of Engineering, Bangalore agreed to discuss this with Asian MMS committee and hold the event.

Since the number of expression for interest to hold iNaCoMM 2019 was not sufficient, it was decided to wait till March 2018. In the meantime, AMM Secretary shall call for expression of interest from the members.

5. PAN card for AMM.

AMM is attempting to gather all documents for applying for same with help of a CA.

6. Holding a mechanism design contest similar to SMDC as part of IPRoMM.

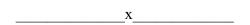
It was suggested that the competition could be a Hackathon based on problem statements coming from industry. It was also suggested that this event could be part of preparation / national selection for IFToMM's Students International Olympiad on Mechanism and Machine Science (SIOMMS). Henceforth, the IPRoMM organizers shall have this as a

regular event. Depending on the schedule of SIOMMS, the organizers can conduct the mechanism design contest as a Hackathon or selection event in line with SIOMMS.

7. Any other matter with the permission of the Chair.

- Based on discussion, it was felt to have a publication partner for AMM so that iNaCoMM proceedings can be brought out without any conflict of interest, like ability to post the proceedings online in AMM website and possibility of publishing some best papers in MMT journal. It was also suggested to check with IFToMM, if such a publishing partnership can be there for all IFToMM member organization events. It was also felt that a clear document detailing review process, publication and copyright for iNaCoMM proceedings and award policy be created to serve as agreement between AMM and event organizer.
- It was suggested to take up activities (atleast 2 events per year) to promote the field of machines and mechanisms in educational institutions. Training programs for teachers and forum to discuss curriculum were suggested. The members suggested that AMM help in finding the resource person's to conduct these events and ensure their availability.
- It was suggested that there be more coordination with Robotic society, since, the domain have overlap and events and activities can be better planned and executed.

No other issue was raised in the GBM. The Secretary thanked the Chair and members for attending the meeting.



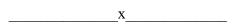
Report on iNaCoMM 2017

The 3rd International and 18th National Conference on Machines and Mechanisms (iNaCoMM), under the aegis of AMM and IFToMM, was successfully organized by the Division of Remote Handling & Robotics (DRHR), Bhabha Atomic Research Centre (BARC), Mumbai, from 13th to 15th December 2017. The conference was held in the DAE Convention Centre, Anushaktinagar, Mumbai. The conference brought together researchers and students, working on various aspects of design, analysis of machines, mechanisms and robotics to deliberate through oral, poster and design contest presentations on recent advances. Dr. D.N. Badodkar, Distinguished Scientist, BARC was the Chairman & Convener, Dr. T.A. Dwarakanath, Scientific Officer-H, DRHR, BARC served as the Co-Convener of iNaCoMM 2017.

iNaCoMM 2017 featured eminent researchers as plenary speakers. On 13th Dec, 2017, Dr. R.K. Sinha, Ex-Chairman, Atomic Energy Commission inaugurated the conference and gave an inaugural address. Prof. C Amarnath, President AMM and Dr. Rama Rao, former Director, Reactor Design & Development Group of BARC were the honorable guests for the inaugural session. Dr. Rama Rao delivered a talk on assessment of vibration in structures and Prof. C. Amarnath reminisced the formation of the Association of Machines and Mechanisms, India and the first NaCoMM conference during his talk in the inaugural session. In keeping with the tradition of NaCoMM, the two prestigious memorial lectures were hosted. On 14th Dec. 2017, Prof. B.M. Belgaumkar memorial lecture was delivered by Prof. Paulo Flores, University of Minho, Portugal, on the challenges and future developments towards the modeling of frictional contacts in dynamics of mechanisms. On 15th Dec. 2017, Prof. K. Lakshminarayana memorial lecture was delivered by Prof. Ashitava Ghosal, IISc, Bangalore on the analysis and design of robots and multi-body computer controlled mechanical systems. The inaugural and memorial lectures were followed by interesting morning and afternoon presentation and poster sessions on the various topics of the conference.

A total of 211 research papers were submitted out of which 72 papers were accepted for oral presentation during the conference after a rigorous two stage peer review process. The research papers were presented in two parallel sessions having six papers per session. 20 shortlisted papers were displayed during the poster presentation session during the conference. The best papers in the student category as well as in the general category were awarded. Also, the two best poster presentations were awarded. The digital proceedings of the iNaCoMM 2017 conference will be published in a book series: *Lecture Notes in Mechanical Engineering (LNMC)* by Springer Nature Singapore Pte Ltd., Singapore.

One of the key objectives of the Association for Machines and Mechanisms (AMM) is to promote innovation among the students. Towards this end, iNaCoMM 2017 hosted a Student Mechanism Design Contest (SMDC) for students. A total of 22 teams had submitted their projects out of which 8 teams were shortlisted after a two stage review process. The shortlisted teams exhibited their working design out of which the best three working models were given awards.



Member in the News



2017 Awards

The WFEO 2017 Awards were presented in Roma, Italy at the WFEO Gala dinner on 1 December 2017 during the General Assembly meetings.

WFEO Medal of Excellence in Engineering Education

The first presentation of WFEO Medal for Excellence in Engineering Education was made in Madrid, Spain, in November 1999, during the 18th General Assembly of WFEO. The Medal was to be presented biennially hereafter, helping direct world attention to the importance of continuing improvement in the quality, delivery and relevance of engineering education and training.

The recipient is chosen based on his or her noteworthy contributions to the improvement of engineering education. Special consideration is also given to outstanding services rendered by educators to engineering educational institutions, and to those involved in the education of engineers. Selection also takes into account appreciable experience in the profession as well as significant educational accomplishments.

Dr. B.V.A. Rao is the winner of the 2017 WFEO Award of Excellence in Engineering Education.



Dr. B.V.A. Rao, a Mechanical Engineer and a Fellow of Institution of Engineers (India) (IEI) since 70s and former Chairman of National Design Research Forum of IEI had an outstanding academic career serving over 55 years in different capacities at Higher Institutes of Technology and Deemed Universities in India and a visiting Faculty in Germany and Singapore.

Besides his contribution to many major industries, both in public and private sectors of this country such as Defence, Space, Atomic Energy, Oil

and Natural Gas Commission, Process Industries etc. are noteworthy and many of them have brought distinguished awards to him. In this context, his concern and contribution for the growth of many Engineering Professional Societies in the country is highly commendable and unique.

Dr. Rao has also distinguished himself with large number of publications, both in national and International journals, guiding nearly 22 Ph.D. candidates and other large number of Master's Thesis resulting in over 200 papers, quite a few of them well cited.

He was even honoured by many the Technical University of Dresden in Germany by awarding him a Golden Doctorate, a distinction given to their Ph.D. candidates (Dr. Ing.) after 50 years of their completion. He has received the Fellowship of the Indian National Academy of Engineering (FNAE) in 1988 and the National Design Award by the Institution of Engineers (India) in 2004.

http://www.wfeo.org/awards/

Glimpses of the Award Giving Ceremony





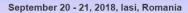


Forthcoming Events



The XXIV International Conference on Robotics

ROBOTICS 2018





Conference Website: www.robotics2018.tuiasi.ro

General information:

It is our pleasure to invite you to ROBOTICS 2018, organized by "Gheorghe Asachi" Technical University of Iasi, Romania, during September 20 - 21, 2018. The conference aims at bringing together under a unique forum, scientists from academia and industry to discuss the state of the art and the new trends in robotics and to present recent research results and prospects for development in this rapidly evolving area.

All materials must be written in English. Submitted papers will undergo a peer review process, coordinated by the International Program Committee. All the selected and presented papers will be published in IOP Conference Series: Materials Science and Engineering (ISI Web of Science).

Organized by:

"GHEORGHE ASACHI" TECHNICAL UNIVERSITY OF IASI FACULTY of MECHANICAL ENGINEERING FACULTY of AUTOMATIC CONTROL AND COMPUTER ENGINEERING

With the support of: ROBOTICS SOCIETY of ROMANIA - SRR

Important deadlines:

March 18, 2018: Submission of papers
May 15, 2018: Notification of acceptance

June 15, 2018: Final camera ready manuscript and registration of at least one

of the authors

September 20 – 21, 2018: Conference

For any questions please contact the organizers at <u>robotics2018@tuiasi.ro</u>

FIRST ANNOUNCEMENT AND CALL FOR PARTICIPATION



4th Students International Olympiad on MECHANISM AND MACHINE SCIENCE

October 24-26, 2018, Lima, Peru



SIOMMS 2018

www.olimpiada.pucp.edu.pe/siomms/

The Pontificia Universidad Católica del Perú is pleased to invite university teams to participate in the 4th Students International Olympiad on Mechanism and Machine Science (SIOMMS) that will be held on October 24-26, 2018. This fourth global Olympiad will be arranged following the decision of the Executive Council of International Federation for the Promotion of Mechanism and Machine Science (IFToMM). It will follow the previous ones in Izhevsk State Technical University (ISTU), Izhevsk, Russia in 2011, Shanghai Jiao Tong University (SJTU), Shanghai, China in 2013 and Universidad Carlos III de Madrid, Spain in



PROBLEM TOPICS

- · Structural analysis and synthesis of mechanisms
- Kinematics of flat mechanisms
- · Force analysis of mechanisms
- · Kinematic analysis of cam mechanisms
- · Gearings (kinematics, geometry, efficiency)
- · Adjustment of dynamic characteristics, mechanical
- Balancing of rotating masses

LANGUAGE

The working language of the Olympiad is English.

Teams consisting of three (3) bachelor and master students and one (1) or more tutors are invited to take part in the Olympiad. Each university may send only one team. The choice of students for each university team may be conducted on the basis of its own local selection competition.

LOCAL ORGANIZING COMMITTEE Pontificia Universidad Católica del Perú

- Jorge Rodríguez Hernández
- Jorge Alencastre Miranda (Vice-Chair).

- Kurt Paulsen Moscoso.
- · David Berrios Bárcena.
- Pedro Flores Álvarez.
- · Daniel Lavayén Farfán.
- · Mario Torres Melgarejo.

SCIENTIFIC COMMITTEE

- · Jorge Rodríguez-Hernández (Chair) Perú
- Marco Ceccarelli, Italy
- Cristina Castejón, Spain
- Eduard Krylov, Russia
- Lena Zentner, Germany Yukio Takeda, Japan
- Emilio Bautista, Spain
- Osvaldo Penisi, Argentina
- Juan Carlos García-Prada, Spain
- Andrés Kecskemethy, Germany
- Carlos Alberto de Almeida, Brazil
- Paulo Flores , Portugal Jorge Alencastre, Perú
- Dante Elías, Perú
- · Klaus Zimmermann, Germany

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crodrig@pucp.edu.pe

REGISTRATION FEES

The registration fee is 150 USD for each participant, which covers the participation in the Olympiad, meals and social program. The accommodation has to be covered by the participants extra. The payment will be detailed by website.

IMPORTANT DATES

Submission of electronic application form: March 28, 2018. Registration fee payment: June 30,

APPLICATION

The application will be via website.

TRANSPORTATION

Lima is the capital city of Peru and is one of the most important cities of Latin America. Lima is located in the central coast, along the Pacific Ocean.

Lima has excellent public transport within the city and has a very modern airport in the port of Callao.

HOST CITY

Peru's capital has more than 10 million people, made up of different races of the world. The historic center of Lima was declared World Heritage Site by UNESCO. Lima is a city with great cultural diversity that is why there are a large number of museums.

In Lima you will find everything you are looking for as cultures, adventures, beaches, dining, entertainment and everything you can imagine.

T 626 2000 www.olimpiada.pucp.edu.pe/siomms/ Campus principal: Av. Universitaria 1801, San Miguel - Lima 32, Perú

Forthcoming Events



Dates to note

Topics

Abstract Apr. 10, '18 Call for special session proposals from Oct. 15, 2017 to Feb. 1, 2018 Acceptance May, 1, '18 Pre-conference workshops Conference [Plenary talks; invited talks; oral presentations; Full paper Jul. 1, '18 Dec. 18, 2018 Dec. 19, 2018 Acceptance Sep. 1, '18 interactive poster sessions; and more] Final paper Conference picnic [A trip to scenic and historic places] Dec. 20, 2018

Plan to submit a paper, organize a special session, and attend the conference, right now!

- Theoretical kinematics
- Computational kinematics
- Machine elements
- Actuators and sensors involving mechanics
- Gearing and transmissions
- Linkages and cams
- Mechanism design
- Dynamics of machinery
- Tribology
- Vehicle mechanisms, dynamics, and design
- Reliability in machines and mechanisms
- Experimental methods in mechanisms
- Robotics and mechatronics
- Biomechanics
- Micro/nano mechanisms and systems
- Medical/heathcare devices
- Nature and machines
- Compliant mechanisms
- Mistory of mechanism and machine science
- Education in mechanism and machine science
- Reconfigurable mechanisms
- Parallel and serial manipulators

Registration (opens on Sep. 1, 2018; 20% early-bird discount until Oct. 15, 2018)

 Regular
 INR 12,000

 Students
 INR 5,000

 Pre-conference workshops
 INR 2,500

 Conference picnic (Dec. 20, 2018)
 INR 2,500

About Bengaluru

Bengaluru, known as the science city of India because it has numerous educational and research institutions and as garden city because of its cool climate and greenery, is a major metropolitan city. It is also an IT hub with thriving start-up companies and major industries, public and private.

About Indian Institute of Science

Indian Institute of Science (IISc), established in 1909, is India's top-ranked university and is in the top 10 of world's small universities. Its vibrant and verdant campus with world-class infrastructure is one of the finest university campuses in the world.

Accommodation

IISc has guesthouses on campus and there are 3-star hotels around IISc.

Travel

Bengaluru International Airport is well connected to all major cities in the world. Bengaluru has good public transportation system and taxi service.

www.iisc.ac.in/conf/AsianMMS2018

Conference Chair G. K. Ananthasuresh, Indian Institute of Science

Conference Secretariat Safvan Palathingal

Email: asianmms2018@gmail.com



The call opens now and ends on Feb. 1, 2018

Proposals for organizing special sessions on emerging topics in mechanism and machine science are invited from interested researchers from academia, government research organization, and industry. The proposals will be eva

Proposals for organizing special sessions on emerging topics in mechanism and machine science are invited from interested researchers from academia, government research organization, and industry. The proposals will be evaluated by the programme committee and the decision will be communicated to the proposer. The proposal should contain the following information:

- Name of the proposer:
- 2. Position and affiliation:
- Theme of the session:
- 4. Description of the theme (100-200 words):
- s. A tentative list of potential authors (at least five):
- Contact information of the proposer (email, telephone, and postal-address):
- 7. Curriculum vitae of the proposer

The proposer is expected to contact potential authors whose work aligns with the chosen theme of the proposed special session, before submitting the proposal. Additional papers are likely to be submitted under the proposed session, if it is accepted. Hence, papers submitted to a special session will also be reviewed like any other papers.

www.iisc.ac.in/conf/AsianMMS2018

Conference Chair G. K. Ananthasuresh, Indian Institute of Science Conference Secretariat Safvan Palathingal

Email: asianmms2018@gmail.com

Glimpses of iNaCoMM 2017



Inauguration by Dr. R K Sinha



Talk by Dr. Rama Rao



Talk by Prof. Amarnath



Dr. D N Badodkar welcoming the Conference Delegates



Greeting Prof. Flores during Belgaumkar Memorial Lecture



Greeting Prof. Ghosal during Lakshminarayana Memorial Lecture



Judges evaluating SMDC



Members of the iNaCoMM 2017 Organizing Committee



Conference Participants at iNaCoMM 2017

The iNaCoMM 2017 conference details and the conference photographs are available in the website: www.inacomm2017.org

Editorial Board

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Editorial Members: Dr. Shankar Sehgal, Panjab University, Chandigarh [Zonal Vice President (ZVP) North]

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Prof. Ranjit Kumar Barai, Jadavpur University, Kolkata [ZVP East]

Prof. Shital S. Chiddarwar, VNIT, Nagpur [ZVP West]