



# IMAV2017

International Micro Air Vehicle Conference & Competition



September 18-22, Toulouse, France

**CALL FOR PAPERS**

1<sup>st</sup> announcement



The International Micro Air Vehicle Conference and Competition (IMAV) is a yearly event that aims at fostering key technologies for the development of micro-air vehicles. It combines a scientific conference and a flight competition intended to all research groups around the world. After Delft (2014), Aachen (2015) and Beijing (2016), the next edition will be held in Toulouse, France, from September 18<sup>th</sup> to 22<sup>nd</sup>, 2017.

## Conference

Authors are encouraged to present research related to MAVs, from fundamental knowledge in disciplinary topics to cross-disciplinary technological innovation and the use of MAVs to other research fields. Topics include but are not limited to:

- Low Reynolds number aerodynamics
  - Unsteady aerodynamics
  - Smart morphing materials
  - Propulsion set and new energy sources
  - Autonomous navigation
  - Cooperation and formation flight
  - Control theory and state estimation
  - Computer vision for MAVs
  - Sense & avoid
  - Integration of UAVs in airspace
  - Reconfiguration in unpredicted events
  - New MAV architectures
- Dedicated applicative sessions will be set up for the following topics :
- Atmospheric research
  - Archeological research
  - Search and rescue operations
  - Industrial inspection
  - Agriculture & environment

Scientific, technical and poster sessions will be organized. Authors will have 25, 20 and 5 minutes to present their work, respectively. Technical papers will be submitted under the form an extended abstract (min. 2 pages). Scientific papers will be submitted as draft papers (6 pages min). See deadlines on page 3.

## Flight Competition

Teams will have the opportunity to participate in two different flight competitions.

**Indoor competition** : This session is a pick-and-drop mission. From point A where an arbitrary object is picked, to point B where the object is dropped, the MAV will be able to fly through distinct paths with more or less complex patterns (including obstacles such as narrow openings and wind gusts). The score is indexed to the complexity of the flight path.

**Outdoor competition** : The goal of the outdoor mission is twofold: 1) scan a large scale feature and locate hazardous objects, 2) achieve, within the given time slot, the maximum number of loops around two remote poles.

**Cooperative flight** : In each flight indoor and outdoor session, a swarming MAV task will be proposed. The task will consist of performing a cooperative flight by carrying an arbitrary object using at least 2 cooperating MAVs.

Further details are provided on the official website : [www.imavs.org](http://www.imavs.org)

## Special sessions and challenges

**Treasure hunt challenge** : In this challenge, the goal is to detect and locate buried objects. Metallic objects will be buried in a given area, and the MAVs will have to scan through the area so as to discover them. The challenge will be evaluated according to accuracy and efficiency of the detection process.

**Drone team parade trophy** : In this challenge, the goal is to have a patrol of fixed-wing UAVs flying in a formation so as to demonstrate their cooperation and accuracy skills. This challenge will be evaluated according to the accuracy of the formation pattern, trajectory, aesthetical qualities of the parade, elapsed time necessary to reach the formation configuration.

**Record breaking session** : This challenge consists in lifting up a given payload 50 cm above the ground during 1 minute. The winning MAV will simply be the smallest among the UAVs capable of lifting this payload.

**Technological demonstration**: The goal of this demonstration is to highlight novel disruptive MAVs architectures / technologies. This will be the criterion for this demonstration.

**Static exhibition** : A static exhibition will be planned in order to display both prototypes and commercial MAVs to the participants.

Further details are provided on the official website.

## Important dates

**Submission of abstracts** : April 30<sup>th</sup>, 2017

**Notification of acceptance** : May 31<sup>st</sup>, 2017

**Submission of full length papers** : September 3<sup>rd</sup>, 2017

**Team registration (flight competition & events)** : April 30<sup>th</sup>, 2017

**Notification of acceptance** : May 31<sup>st</sup>, 2017

**General registration** : July 31<sup>st</sup>, 2017

## Best papers

Based on the quality of their paper and presentation, selected authors will be offered the opportunity to publish their work through a fast review process in the **International Journal of Micro-Air Vehicle** or in the **Journal of Unmanned Systems**.

## Rates

**General fees (including banquet)** : 600 €

**Students** : 250 €

**Extra tickets for banquet** : 60 €

## Scientific committee

- Pascual Campoy (UPM, Madrid, Spain)
- Ben M. Chen (NUS, Singapore)
- Guido de Croon (Delft University of Technology, Delft, The Netherlands)
- Gautier Hattenberger (ENAC, Toulouse, France)
- Florian Holzapfel (TUM, Munich, Germany)
- Dieter Moormann (RWTH Aachen University, Aachen, Germany)
- Jean-Marc Moschetta (ISAE-SUPAERO, Toulouse, France)
- Bart Remes (Delft University of Technology, Delft, The Netherlands)
- Sergey Serokhovostov (MIPT, Moscow, Russia)
- Simon Watkins (RMIT University, Melbourne, Australia)
- Mark Reeder (Air Force Institute of Technology, Ohio, USA)
- Sergey Shkarayev (University of Arizona, Tucson, USA)
- Pascal Morin (UPMC, France)
- Simon Lacroix (LAAS-CNRS, France)
- Henry de Plinval (ONERA, France)

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[www.imavs.org](http://www.imavs.org)