

INTERNATIONAL MICRO AIR VEHICLE CONFERENCE AND FLIGHT COMPETITION

IMAV 2012

BRAUNSCHWEIG, GERMANY
03 - 06 JULY 2012

CALL FOR PAPERS

organised by



German Institute of Navigation
Deutsche Gesellschaft für Ortung und Navigation e.V. (DGON)

in co-operation with



Deutscher Aero Club e. V.

and



Deutsche Gesellschaft für Luft- und Raumfahrt -
Lilienthal-Oberth e.V. (DGLR)

Introduction

Micro Air Vehicles (MAV) are the smallest man-made flying machines. They are flying robots and have the weight and size of small birds. Innovation in navigation, control and processing technology has made this possible.

There are still numerous scientific challenges to be solved in order to fly Micro Air Vehicles under all flight and weather conditions. The development of miniaturized structures, propulsion and navigation systems, aerodynamics, flight controllers, actuators and sensors are just a few of the current research topics in the field of MAV.

Besides the theoretical part - as before - IMAV 2012 includes an indoor and outdoor flight competition of MAV and will be held at Braunschweig, Germany from 03 - 06 July 2012.

The conference shall serve as a platform to exchange information on the state-of-the-art of MAV. Thus, the German Institute of Navigation cordially invites everyone from Science, Industry, Military, Government Agencies and Users to participate in this conference.

Further information about IMAV 2012 as well as rules and regulations of the flight competition can be found on www.imav2012.org.

Suggested Main Topics

(Suggested topics include, but are not limited to the following areas as they relate to MAV)

1. Guidance, Navigation and Control

- MAV Simulation
- Control Algorithms
- Sense and Avoid
- Concepts for Indoor Operation
- Enhanced MAV Autonomy
- Artificial Intelligence in MAV
- Control System Theory
- MAV Avionics

2. Sensors

- MEMS Sensor Technology
- Satellite Navigation Systems for MAV
- Image Sensors and Image Data Processing
- Sensor Data Fusion
- Computer Vision for MAV

3. Fuselage and Propulsion Systems

- Fuselage Materials
- Design Criteria for MAV Structures
- Propulsion Systems
- Alternative Propulsion Concepts

4. Aerodynamics

- Numerical Simulation
- Experimental and Innovative Aerodynamics

5. MAV Operation

- Mission Planning and Control
- Telemetry Concepts
- MAV Swarms
- Scientific MAV
- Applications of MAV
- Indoor and Outdoor MAV Navigation

6. System Engineering

- Flapping Wings
- Rotorcraft
- Fixed Wings
- Hybrid Vehicles
- Small-sized MAV
- New MAV Concepts
- MAV Design Methodology
- Lighter-than-air MAV

7. Legal Aspects of MAV flying

Suspense Dates

Submission of abstracts:
Notification of authors:
Submission of **full papers** for proceedings:

14 March 2012
11 April 2012
21 June 2012

Flight Demonstration/ Competition

One session of the conference will be dedicated to the Flight Competition. Rules and Regulations for this competition you will find on www.imav2012.org.

Technical Exhibition

A Technical Exhibition will also be arranged. Potential parties are requested to complete the reply form for further information on our dedicated website.

Language

The conference language will be **English**.

Contributions

Authors are invited to submit papers on any of the main topics for consideration by the Programme Committee.

An abstract of no more than 500 words should be submitted by **14 March 2012** as data file to

dgon.bonn@t-online.de

Subj.: "IMAV 2012"

The cover page of the submitted abstract must identify:

- Title of paper / contribution
- Name(s) of Author(s)
- Organisation / Company
- Mailing Address
- Phone and Fax Numbers
- e-mail Address

Authors will be notified of accepted / rejected papers by **11 April 2012**. For presenting authors the conference fee will be reduced considerably.

Programme Committee

Prof. Dr.-Ing. Peter Vörsmann (Chairman)	Technische Universität Braunschweig, GE
Dr. ir. Matthijs Amelink	Thales Research & Technology Netherlands, Delft, NL
Prof. Dr. Christian Boller	Fraunhofer-Institute, Saarbrücken, GE
Paul DiNardo	US Army RDECOM AMRDEC, Redstone Arsenal, AL, USA
Prof. Dr.-Ing. Robert Luckner	Technische Universität Berlin, GE
Prof. Jean-Marc Moschetta	Institute Supérieur de l'Aéronautique et l'Espace, Toulouse, FR
Dr. Michael Ol	US Air Force Research Lab, Wright-Patterson Air Force Base, OH, USA
Rick Ruijsink	Delft University of Technology, NL
Prof. Sergey Shkarayev	University of Arizona, USA
Prof. Dr.-Ing. habil. eng. Krzysztof Sibilski	Wrocław University of Technology, PL
Prof. Dr. Evgeny Sokolov	University of St. Petersburg, RU
Prof. Rafal Zbikowski	Cranfield University, Swindon, UK