



# EMAV - International Micro UAS Competition

By Prof. Dr.-Ing. Peter Vörsmann

For the third time following the years 2004 and 2006, the European Micro Aerial Vehicle Conference EMAV 2008 will take place in Braunschweig from July 8<sup>th</sup> through 10<sup>th</sup>, 2008. Apart from scientific lectures and debates, the EMAV 2008 will also offer an outdoor flight competition on the gliding field in Gifhorn (Wilsche) as well as an indoor competition at the local convention centre, the *Volkswagenhalle Braunschweig*; the latter will at the same time be serving as the venue for this conference.

For more information, visit the EMAV 2008 website: [www.emav08.org](http://www.emav08.org)

Subject areas discussed at the EMAV 2008 will be concepts and systems for flight control and navigation, the integration of current micro sensors, conventional and alternative aircraft configurations and propulsion systems, the special aerodynamics of MAVs as well as the planning and carrying out of missions that also comprise the use of swarms of MAV.

The conference will be rounded off by an exhibition of current MAV-developments as well as flight competitions, during which teams from all over the world will be showing off the performance of their micro air vehicles. Within those missions, which have to be performed independently, objects will have to be identified, precision airdrops will have to be completed and high dynamic flight manoeuvres will have to be performed. The following words represent a short description of the competition rules, which may also be looked up on the above mentioned internet page.

The EMAV 2008 Flight Competition includes an indoor and an outdoor Flight Competition for MAVs. Both the indoor and the outdoor event consist of two separate competitions, one focussing on high manoeuvrability, the other one focussing on the MAV's ability to fulfil a complex mission. During the indoor manoeuvrability competition the MAV is to perform an 8-shape flight around two posts and to complete as many round as possible in a given time.

The outdoor manoeuvrability competition is set up by three arches with an opening of 6x6m<sup>2</sup> in an L-shape. Again, the mission score is dependent on the number of completed L-shape flights in limited time. In the indoor mission competition the MAV enters a small building through the door, identifies targets on the walls and the floor of the building, leaves vertically through a chimney and lands on top of the roof. Before returning to the starting point, an area with simulated cross winds has to be passed. During the outdoor mission a target must be identified at a location without the operator's line-of-sight to the MAV. Furthermore, a ball is dropped by the MAV at a given position, and the MAV has to perform a precision landing. All competitions are open for fixed wing, rotary wing and flapping wing MAVs not exceeding a maximum lateral dimension of 70/80 cm and a weight of no more than 1 kg. The score gained during the competitions is multiplied with two factors, one regarding the MAV's size, the other one regarding the level of autonomy.

Teams from all over the world are also invited to give a flight demonstration of their aircraft capabilities apart from the flight competition. Some slots for free flight demonstrations are available. Please contact the organizer, if you wish to do so.

In 2006, about 100 scientists from all over the world attended the EMAV, among them experts from the USA, Turkey, Israel, Israel, China, and South Korea. In 2008, participants from these countries are once again expected to attend this conference.

Just as in the previous years, the German Institute of Navigation (DGON) in Bonn will be organizing the EMAV 2008. The institute's chairman, Prof. Dr.-Ing. Peter Vörsmann, also has the chair of the Institute Aerospace Systems (Institut für Luft- und Raumfahrtssysteme) at the Technische Universität Braunschweig, which will be in charge of the local organization of this conference.

The German Institute of Navigation (DGON) is a non profit making organization founded in 1951. The institute's main objectives are:

- assistance of scientific activities related to navigation and position finding;
- support of research & development activities;
- provision of opportunities to present and introduce new applications in the field of navigation, localisation and positioning in order to advance and to offer practicable contributions for improving safety and economy of maritime, air, land, space and inland waterway traffic and related means of communication, including telematics, radar, transponder, gyro and robotic engineering.

In pursuit of these objectives DGON co-operates with interested parties from the government, universities, scientific and research organizations, and industry.



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