



XXXIV OSTIV CONGRESS

**28 July - 3 August 2018
Hosín, Czech Republic**

Congress Program



Welcome to the OSTIV Congress 2018 in Czech Republic. Every two years the Congress offers new information and latest research results in soaring and sailplane technology to scientists and engineers from all over the world. The meeting presents unique opportunities for scientific exchange and coordination of future activities.

This year the Congress is hosted by the Czech Aero Club, along with the 35th FAI World Gliding Championships, in Hosín, Czech Republic. We are thankful that the OSTIV Congress can take place in a well equipped hall near the club house at Hosín Airfield.

We thank our industrial sponsors, Alexander Schleicher Segelflugzeugbau, HpH Sailplanes, Jonker Sailplanes, and Schempp-Hirth Flugzeugbau, who made it possible for us to offer free access to the Congress and give special support to participating students.

The Call for Abstracts issued by OSTIV generated response by engineers and scientists from 10 countries worldwide. The received extended abstracts were reviewed, and they are published in this proceeding booklet. We believe that an excellent program has been generated this way. For their efforts in recruiting high-quality contributions we acknowledge the members of the Program Committee:

Zafer Aslan, Turkey	Götz Bramesfeld, Canada	Michael Greiner, Germany
Mark Maughmer, USA	Judah Milgram, USA	Ian Oldaker, Canada
Lukáš Popelka, Czech Republic	Rolf Radespiel, Germany	Gerard Robertson, New Zealand

Preparing the Congress took endless hours of work by the Organizing Team, consisting of Lukáš Popelka Czech Republic, Rolf Radespiel, Germany and Britta Schlenker, Germany. We are very thankful for their efforts. Our thanks also go to Alexander Barklage and Tim Landa of Technische Universität Braunschweig for booklet editing.

The OSTIV Congress is the perfect setting to bestow the OSTIV Plaque, OSTIV Prize 2017 and the OSTIV Best Student Paper Awards. We look forward to the Opening Ceremony and the Congress Closing Dinner for presenting the Award Winners.

We wish all Congress participants an exciting and rewarding week in Hosín.

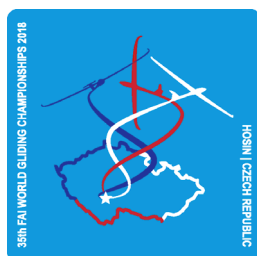
Prof. Rolf Radespiel

Prof. Mark Maughmer

OSTIV President

OSTIV Vice President

OSTIV acknowledges support provided by



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Welcome to Hosín for the XXXIV OSTIV Congress

Hosín is a village in the South Bohemian Region of the Czech Republic with a population of 750, famous explicitly for local sport-aviation airfield. Hosín lies about 7 km north of České Budějovice, a statutory city in the Czech Republic. It is the largest city in the South Bohemian Region and its political capital. České Budějovice is the seat of the University of South Bohemia, and the Academy of Sciences with a population of almost 100,000. It is located in the valley of the Vltava River.

České Budějovice, established in 1265, has long been known for the beer brewed there since the 13th century. The old town preserves architecture from the Gothic, Renaissance, Baroque, and 19th century periods. The Museum of South Bohemia holds a large collection of historic books, coins, weapons and other cultural articles.

The OSTIV Excursion – HpH sailplane manufacturer and Kutná Hora town

Wed 1st August 2018

OSTIV delegates are invited to join in on this interesting tour to the facilities of Congress' main Sponsor.



HpH Ltd. is a company long established in the aviation industry. Having been involved with initial construction of the Diamond Dimona, Katana, and more recently the mighty EB29, HpH has gained reputation for its engineering, build quality and attention to detail. In 1997, the HpH company succeeded in gaining the technology and production documentation for the original Glasflügel 304. Production started in 1997 with an updated version of the Glasflügel 304, the HpH 304CZ, which proved successful both with customers and in competitions. After that, HpH produced the HpH304C Wasp, an affordable FAI Standard Class version of the 304CZ.

HpH has used this knowledge, design & manufacturing know-how to produce a highly competitive sailplane with the »all-new« HpH Shark series. As the Shark is a refreshing alternative to the established competition, HpH has already shipped over 70 Shark gliders to customers worldwide.

A new entry into FAI double-seater 20m-class has also been developed. This involved extensive aerodynamic studies and wind-tunnel testing, building on the experience gained in the Shark family. PW-series airfoils, plus a wing area of 15.38m², yielding an aspect ratio of 26.5 deliver performance, and advanced manufacturing techniques provide wing-loadings as low as 36kg/m². An optimally curved wing leading edge and elliptical tailplane deliver a unique silhouette.

Photos Petr Kolmann



The town of Kutná Hora has been historically competing with Czech capital, Prague, over many centuries, economically, culturally, and politically. The town premises began in 1142 with the settlement of Sedlec Abbey, the first Cistercian monastery in Bohemia. By 1260, German miners mined for silver in the mountain region, which they named Kuttentberg, being the part of the monastery property. The earliest traces of silver have been found dating back to the 10th century, when Bohemia already had been in the crossroads of long-distance trade for many centuries. Silver dinars have been discovered belonging to the period between 982–995.

Kutná Hora and the neighboring town of Sedlec are a UNESCO World Heritage Site. Among the most important buildings in the area are the Gothic jewel, five-naved St. Barbara's Church, construction begun in 1388, and the

neighboring Italian Courtyard (Vlašský dvůr), former a royal residence, which was built at the end of the 13th century.

Delegates and friends of OSTIV are invited to join in on this tour. Cost will be specified at Congress registration.

Departs: Hosín airfield; meet 8.15am at OSTIV Hangar for a strict 8:30am departure.

OSTIV Congress Dinner @ Podhrad Hotel

Friday 3rd August 2018

After the fascination of a solid week of technical presentations, all OSTIV Speakers, Delegates, family and friends of OSTIV are invited to enjoy a relaxed and friendly dinner together at the Hotel Podhrad, address Nám. Čsl. armády 30.



This venue offer an excellent gastronomy in the beautiful and calm environment of the town of Hluboká nad Vltavou. The hotel is located just below the famous picturesque Tudor-style Hluboká chateau, which is the dominant landmark of the whole town.

A balanced menu of Czech specialties is served from 7:30 pm.

Please advise attendance and numbers at Registration desk when you register.

OSTIV Congress, 28 July - 3 August 2018

Hosín, Czech Republic

	Saturday, 28 July 2018
	Hosín - LKHS airfield
17:30 - 18:30	Opening Ceremony and Presentation of OSTIV-Awards 2018

	Hosín - LKHS, OSTIV Hangar
15:00 - 18:00	registration
	Monday, 30 July 2018
	Hosín - LKHS, OSTIV Hangar
08:00 - 08:45	registration
	Sailplane Loads
	Chair: Loek Boermans
08:45 - 09:15	LIFETIME CALCULATIONS FOR GLIDERS ON THE BASIS OF DIFFERENT LOAD SPECTRA. C. Kensche, Stuttgart, Germany.
09:15 - 09:45	APPLICATION OF AEROELASTIC TAILORING FOR GUST ENERGY EXTRACTION. M. Melville, G. Bramesfeld, A. Kolaeiy, H. Alighanbari, Toronto, Canada.
09:45 - 11:00	coffee break
	Aerodynamic Prediction
	Chair: Mark Maughmer
11:00 - 11:30	CIRCLING CALCULATIONS FOR PREDESIGN OF SAILPLANES. J. Himisch, K. Rhode-Brandenburger, Braunschweig, Germany.
11:30 - 12:00	AIRFOIL MAXIMUM LIFT COEFFICIENT ASSESSMENT FOR PRELIMINARY DESIGN PURPOSES AND OPTIMIZATION. L. Popelka, D. Šimurda, V. Skála, M. Matějka, M. Schmirler, Prague, Czech Republic.
12:00 - 12:30	TRANSITION PREDICTION RESULTS FOR NLF(1)-0416 AIRFOIL AND SICKLE WING. M. Kruse, F. Munoz, R. Radespiel, Braunschweig, Germany.
12:30 - 14:00	lunch break / registration
	Aerodynamic Drag
	Chair: Rolf Radespiel
14:00 - 14:30	PREDICTION OF INSECT CONTAMINATION ON AIRFOIL BY USING CFD METHODS. V. Běták, Prague, Czech Republic.
14:30 - 15:00	DETERMINATION OF NOSE WHEEL DRAG AND PERFORMANCE INCREASE BY A RETRACTABLE NOSE GEAR. J. Condé-Wolter, J. Frey, Dresden, Germany.
15:00 - 15:30	coffee break
	Atmospheric Waves - 1
	Chair: Edward Hindman
15:30 - 16:00	SOARING INTO THE STRATOSPHERE. D. Etling, Hannover, Germany.
16:00 - 16:30	DFS 582 - HIGH-ALTITUDE RESEARCH GLIDER PROJECT 1958-1964. H.-L. Meyer, Braunschweig, Germany.
	Evening
20:00 - 21:00	OSTIV General Conference

	Tuesday, 31 July 2018
	Hosín - LKHS, OSTIV Hangar
08:30 - 08:45	registration
	Aeroelasticity
	Chair: Fritz Kießling
08:45 - 09:15	HOW TO PERFORM FLIGHT VIBRATION TESTING BASED ON OPERATIONAL MODAL ANALYSIS? J. Schwochow, Göttingen, Germany.
09:15 - 09:45	STUDY OF CLOSE GROUND PROXIMITY ON A FLEXIBLE WING. Z. Pátek, R. Kulhánek, Prague, Czech Republic.
09:45 - 11:00	coffee break
	Performance
	Chair: Götz Bramesfeld
11:00 - 11:30	OPTIMIZED HIGH-SPEED PERFORMANCE OF RC GLIDERS BY DYNAMIC SOARING. G. Sachs, B. Grüter, München, Germany.
11:30 - 12:00	TRAVEL PERFORMANCE OF ENGINELESS UAV BY DYNAMIC SOARING. G. Sachs, B. Grüter, München, Germany.
12:00 - 13:30	lunch break
	Atmospheric Waves - 2
	Chair: Zafer Aslan
13:30 - 14:00	EXPLORING GRAVITY WAVES IN THE PYRENEES BY GROUND BASED OBSERVATIONS, IN-FLIGHT MEASUREMENTS, AND MODEL ANALYSIS. E. Mascus, M. Sistach, M. Soler, A. Ultsch, C. Maul, Frankfurt, Germany.
14:00 - 14:30	CATSKILL MOUNTAIN WAVE PROJECT: EXPLORATION, MAPPING, AND FORECASTING OF WAVE CONDITIONS IN SOUTHERN NEW YORK. D. Sazhin, P. Chidekel, J. Bird New York, USA.
14:30 - 15:00	coffee break
	Atmospheric Convection - 1
	Chair: Dieter Etling
15:00 - 15:30	STRUCTURES OF THE BOUNDARY LAYER - SOME BOUNDARY LAYER THERMODYNAMICS. C. Lindemann, Berlin, Germany.
15:30 - 16:00	EFFECTS OF HIGH EVAPORATION, TEMPERATURE AND HUMIDITY ON SOARING IN AND NEAR VICINITY OF ISPARTA, TURKEY. F. Dökmen, A. Tokgozlu, Z. Aslan, TURKEY.
16:00 - 16:30	URBAN HEAT ISLAND; IN ANKARA-İZMİR-KARAPINAR (TURKEY). K. Yasdiman, A. Tokgozlu, E. T. Özdemir, Z. Aslan, Istanbul, Turkey.
	Hosín - LKHS, OSTIV Hangar
	Evening Session
	Chair: Rolf Radespiel
20:00 - 21:00	ON THE HISTORY OF FLUTTER PREDICTION AND PREVENTION. F. Kießling, Germany.

	Wednesday, 1 August 2018
	Departing Hosín - LKHS, Carpark
08:15 - 20:30	Excursion to Kutná Hora
	HpH Ltd., Manufacturer of HPH sailplanes, and historic city of Kutná Hora. Tickets sold at registration desk of OSTIV Congress

	Thursday, 2 August 2018
	Hosín - LKHS, OSTIV Hangar
	Safety - 1
	Chair: Patrick Pauwels
08:45 - 09:15	SAFETY AS AN ADDITIONAL SUBJECT IN PILOT TRAINING. A. Ultsch, Marburg, Germany.
09:15 - 09:45	TIME TO ESCAPE! A SURVEY OF TIME REQUIRED FOR GLIDER PILOTS TO ESCAPE A GROUND BASED COCKPIT SIMULATOR. S. Smith, Melbourne, Australia.
09:45 - 11:00	coffee break
	Sailplane Propulsion
	Chair: Lukas Popelka
11:00 - 11:30	SAILPLANE WING INTEGRATED WITH A MOTOR-PROPELLER SYSTEM. J. Pytka, E. Gnapowski, A. Rypulak, P. Kasprzak, J. Pytka, Lublin, Poland.
11:30 - 12:00	SAFETY MANAGEMENT OF BATTERY ELECTRIC PROPULSION IN GLIDERS. R. Klein, Mosbach, Germany.
12:00 - 12:30	PUSHER-FLAP OR COANAJET. G. Koppenwallner, Göttingen, Germany.
12:30 - 14:00	lunch break
	Safety – 2
	Chair: Alfred Ultsch
14:00 - 14:30	GLIDING TRAINING IN THE EU – PAST & FUTURE. P. Pauwels, Belgium.
14:30 - 15:00	FATAL ACCIDENT RATES INVOLVING SPINNING FOR SELECTED SINGLE-SEAT GLIDERS. M. Stimson, S. Smith, Melbourne, Australia.
15:00 - 15:30	A STATIC LINE SYSTEM DESIGNED TO BE RETROFITTED TO TYPICAL EMERGENCY PARACHUTES FOR USE BY GLIDER PILOTS:- BUYING THE PILOT TIME IN A CRITICAL SITUATION. S.Smith, Melbourne, Australia.
15:30 - 16:00	coffee break
	Atmosheric Waves - 3
	Chair: Rick Millane
16:00 - 16:30	VALIDATING MOUNTAIN-WAVE UPDRAFT SPEEDS PREDICTIONS FROM THE HIGH-RESOLUTION, RAPID-REFRESH (HRRR) NUMERICAL WEATHER PREDICTION (NWP) MODEL. E. Hindman, New York, USA.
16:30 - 17:00	LEE WAVES WITHOUT MOUNTAINS EXTENSIVE WAVE INDUCED CLOUD STREETS OVER GERMANY ON 14TH APRIL 2015. J. West, Germany.
17:00 - 17:30	ONGOING DEVELOPMENTS IN MOUNTAIN WAVE FORECASTING AT THE HUNGARIAN METEOROLOGICAL SERVICE. P. Salavec, Budapest, Hungary.
	Hosín - LKHS, OSTIV Hangar
	Evening Session
	Chair: Lukas Popelka
20:00 - 21:30	ON THE WAY TO GLIDE RATIO 100:1. L. Boermans, Delft, The Netherlands.

	Friday, 3 August 2018
	Hosín - LKHS, OSTIV Hangar
	Sailplane Design - 1
	Chair: Mark Maughmer
08:45 - 09:15	AN ULTRA-LONG ENDURANCE SOLAR-POWERED UNMANNED AIRPLANE. B. Bissonnette, T. Krebs, M. Melville G. Bramesfeld, Toronto, Canada.
09:15 - 09:45	DILEMMA RESOLVED: AIRBRAKES TAMED. M. Greiner, G. Bangga, Stuttgart, Germany.
09:45 - 11:00	coffee break
	Sailplane Design - 2
	Chair: Rolf Radespiel
11:00 - 11:30	AIRFOIL OPTIMIZATION WITH CST-PARAMETERIZATION FOR (UN-)CONVENTIONAL DEMANDS. J. Achleitner, K. Rhode-Brandenburger, M. Hornung München, Germany.
11:30 - 12:00	MODERN SAILPLANE WING DESIGN. M. Maughmer, University Park, PE, USA.
12:00 - 13:30	lunch break
	Atmospheric Convection - 2
	Chair: Edward Hindman
13:30 - 14:00	FINE STRUCTURE OF THERMALS IN ARID CLIMATE: RESULTS OF GLIDER-BASED IN FLIGHT MEASUREMENTS. A. Ultsch, C. Maul, Marburg, Germany.
14:00 - 14:30	MEASUREMENT RESULTS FROM WARM AIR THERMALS OVER THE NAMIBIAN STEPPE. A. Kiessling, Weil der Stadt, Germany.
14:30 - 15:00	MODELLING BOUNDED RATIONALITY AND RISK STRATEGY IN THERMAL SOARING. J. Bird, D. Sazhin, J. Langelaan, University Park, Pennsylvania, USA.
	Podhrad Hotel, Hluboká nad Vltavou, Nám. Čsl. armády 30
19:00	Congress Closing Dinner