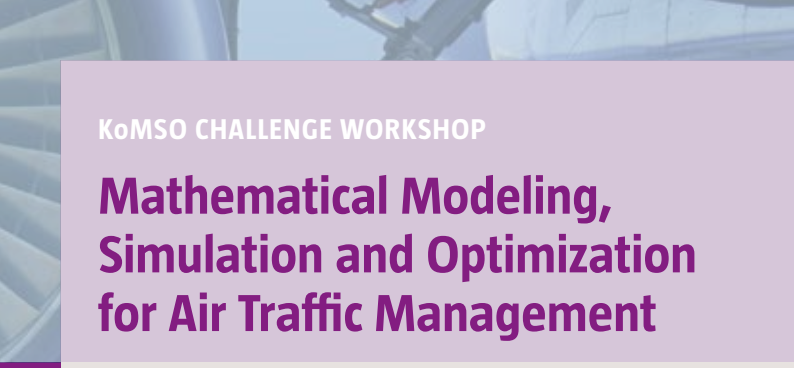
Lufthansa Systems

KoMSO

KoMSO CHALLENGE WORKSHOP · **PROGRAM**

Mathematical Modeling, Simulation and Optimization for Air Traffic Management

JULY 14 –15, 2016
Lufthansa Systems
Am Prime Parc 1, 65479 Raunheim, Germany



KoMSO CHALLENGE WORKSHOP

Mathematical Modeling, Simulation and Optimization for Air Traffic Management

Flight route planning nowadays is faced with growing challenges due to continuous increase of air traffic and mounting strict requirements on safety, efficiency, capacities and environment. To successfully accomplish these challenges, joint efforts of all air traffic management (ATM) stakeholders – air traffic control, network managers, airports, airlines and academia – are necessary.

This workshop will discuss a variety of mathematical aspects in ATM, including pre-flight route optimization as well as in-flight conflict resolutions. Day 1 offers insight into the flight operation at Lufthansa, day 2 discusses approaches of mathematical modeling, simulation and optimization (MSO) for the stakeholder-specific challenges.

This event serves as a networking platform to foster synergies and collaborations.

THURSDAY – JULY 14, 2016
MEETING ROOM AT LUFTHANSA SYSTEMS

12:00	**Arrival, Check-In at NH Hotel, Registration**
13:00	**Lunch at Lufthansa Systems Cafeteria**
14:00	**Address of Welcome** Stefan Auerbach, Chief Executive Officer Lufthansa Systems Urban Weißhaar, Head of SESAR Program Lufthansa Systems
14:15	**Air-Traffic Control in Complex Lower Airspace (TMA)** Roland Scharff, DFS Deutsche Flugsicherung
14:45	**Air Traffic Management:** **The Synergy of Flight Planning and** **Flight Operation – A Report from the Cockpit** Jörg Pikolin, A320 Captain Deutsche Lufthansa
15:15	**Coffee Break**
15:45	**Future SESAR Solutions and Related Flight Trials with Lufthansa Participation** Michael Hopp, A380 First Officer, SESAR Project Pilot, Deutsche Lufthansa

16:20 Bus Transfer to Lufthansa Basis

17:00 Visit to Lufthansa Operations Control Center
Gerd Mattes, Senior Manager Flight-Dispatch and ATM
Deutsche Lufthansa

18:32 S-Bahn Ride to Frankfurt
Sightseeing Tour: Alte Oper, Maintower, Römer
Stroll along the Main

Workshop Dinner (Dutch treat)
at Gerbermühle, Gerbermühlstraße 105,
60594 Frankfurt a.M.

FRIDAY – JULY 15, 2016
MEETING ROOM AT NH HOTEL

09:00 **Welcome**
Bernd Jurisch, Vice President Product Line Lido/Flight, Lufthansa Systems

09:15 **VOLAR: A New Algorithm for the 4D Business Trajectory Calculation from Airspace User Perspective**
Ralf Borndörfer, Head of Mathematical Optimization, Zuse Institute Berlin
Swen Schlobach, Senior Expert Engineer Optimization, Lufthansa Systems

09:45 **Decision Support Tools for Separation Management – How Far Can We Go?**
Matthias Poppe, Deutsche Flugsicherung (DFS)

10:15 **Terminal Control Area Aircraft Scheduling and Trajectory Optimization Approaches**
Matthias Gerdts, Bundeswehr University Munich
Marcella Samà, Università degli Studi Roma Tre

10:45 Coffee Break

11:15 **Aircraft Trajectory Optimization using the FSD Optimal Control Tool for Matlab (FALCON.m)**
Benedikt Grüter, TU Munich

11:45 **Automatic Speech Recognition to Increase ATM Efficiency**
Hartmut Helmke, DLR, Institute of Flight Guidance, Braunschweig

12:15 Lunch Break

13:15	**Collaborative ATFM** Christopher Bouman, Eurocontrol
13:45	**Robust Runway Scheduling: Exact Approaches and Protection against Disturbances** Frauke Liers, University of Erlangen-Nuremberg
14:15	**The ATM Needs from Airport Perspective: Departure & Arrival Flow Management** Thorsten Astheimer, Fraport AG
14:45	**Coffee Break**
15:15	**Environmental Considerations in Trajectory and ATM Network Optimization** Florian Linke, DLR, German Aerospace Center, Hamburg
15:45	**Lufthansa Systems and SESAR: Our Needs for Mathematical Support** Urban Weißhaar, Max Hoffmann, Lufthansa Systems
16:15	**Closing Discussion and Farewell**

KoMSO – Committee for Mathematical Modeling, Simulation and Optimization

KoMSO unites the triad of mathematical modeling, simulation and optimization (MSO) as new field of technology in research and development to reinforce the innovational strength of Germany as high-tech location. As a strategic alliance it is KoMSO's purpose to determine current and future demand areas in MSO, to make them visible, and to support respective projects.

The activities of KoMSO are currently partly funded through the Accompanying Networks Project (IMNET) as part of the "Mathematics for Innovations in Industry and Services" program of the German Federal Ministry of Education and Research (BMBF).

Lufthansa Systems

Lufthansa Systems GmbH & Co. KG is a leading airline IT provider. Based on long-term project experience, a deep understanding of complex business processes and strong technological know-how, the company provides consulting and IT services for the global aviation industry. Over 300 airlines worldwide rely on the know-how of IT specialists at Lufthansa Systems. Its portfolio covers innovative IT products and services which provide added value for its customers in terms of enhanced efficiency, reduced costs or increased profits. Headquartered in Raunheim near Frankfurt/Main, Germany, Lufthansa Systems has offices in 16 other countries.

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KoMSO
Committee for Mathematical Modeling, Simulation and Optimization

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