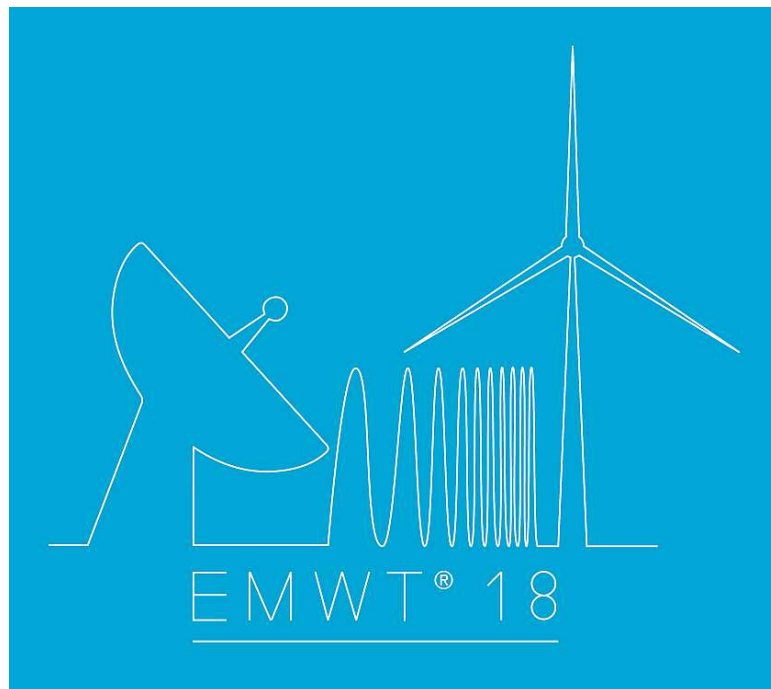# International Specialist Meeting
"Electromagnetic Waves and Wind Turbines 2018"

December 6-7, 2018

Delft University of Technology (Tu Delft) Science Centre,
Mijnbouwstraat 120, Mekelzaal, Delft, The Netherlands

Program

Day 1 - December 6, 2018

09:00 Registration and coffee

10:00 Opening

10:15 Keynote Speaker: "*Wind Turbine-Radar Interference and Opportunities at the ARM Southern Great Plains Site: Identification, Characterization, and Mitigation*" (A1)

Bradley Isom,
Pacific Northwest National Laboratory, U.S.A.

11:15 "*Windfarms and radar, various judgement processes*" (A2)

Arne Theil, Onno van Gent
TNO The Hague, The Netherlands

11:45 "*Comparison of CEM Methods for fast Simulation of Rotating Wind Turbines*" (A3)

Frank Weinmann[1], Stefan O. Wald[1], and Peter Knott
[1] Dept. Antenna Technology and Electromagnetic Modelling AEM Fraunhofer Institute for High Frequency Physics and Radar Techniques FHR, Wachtberg, Germany

12:15 "*Impact of wind farms on low-frequency radio astronomy observations with LOFAR.*" (A4)

M.J. Bentum, W. van Cappellen and M. Brentjens,
ASTRON, The Netherlands

12:45 Lunch at Botanical garden in Delft

14:00 "*Deep Adversarial Training with micro-Doppler signatures of wind-turbines and mini-UAVs*" (A5)

Lorenzo Cifola, Ronny Harmanny
Thales Nederland B.V., The Netherlands

14:30 "*Precision Signal-in-space Measurements of Terrestrial Navigation Systems using Multicopter*" (A6)

Thorsten Schrader[1], Jochen Bredemeyer[2], Marius Mihalachi[1], Thomas Kleine-Ostmann[1]
[1]Physikalisch-Technische Bundesanstalt (PTB), Fachbereich Hochfrequenz und Felder, Germany
[2]FCS Flight Calibration Services GmbH, Braunschweig, Germany

15:00 "*Finding the Needle in a Haystack (Radar Detection,Tracking and Classification of Mini/Micro UAVs)*" (A7)

Ismail Gokhan DERE, Utku YILMAZ, Tevfik Bahadir SARIKAYA, Yusuf Bora KARTAL,
ASELSAN, Ankara, Turkey

15:30 Coffee break

16:00 "Stealth Technologies to Reduce the Impact of Wind Turbines on Radar Systems" (A08)

Vince Savage
Radar Impact Assessment, QinetiQ, UK

16:30 *"Spectral Polarimetric Filter Design for Wind Turbine Clutter Suppression" (A9)*
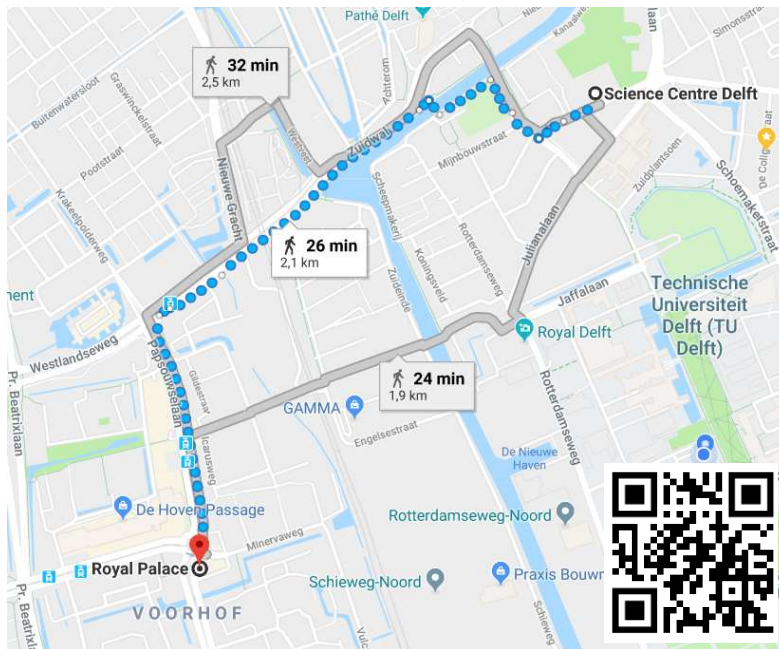
Jiapeng Yin, Christine Unal, Herman Russchenberg
Delft University of Technology, the Netherlands

17:00 *"Noise Radar Measurements of Turbines in a Wind Farm" (A10)*

Christoph Wasserzier,
Fraunhofer Institute for High Frequency Physics and Radar Techniques FHR, Germany

18:00 Dinner (Dinner will be served at 18:30)

Address: Royal-Palace, Minervaweg 4-8, 2624 BZ Delft

Day 2 - December 7, 2018

9:00 Keynote *speakers: "Small UAVs and their Buzz…. How micro-Doppler makes the difference!"* (A11)
J.J.M. (Jacco) de Wit[1] and Ronny Harmanny[2]
[1]TNO, The Hague, Netherlands
[2]Thales Nederland B.V., The Netherlands

10:00 *"Comparing analytical and numerical simulations of the radar micro-Doppler signatures of multi-rotor UAVs" (A12)*
Peter J. Speirs[1], Arne Schröder[1], Matthias Renker[2], Peter Wellig[2] and Axel Murk[1]
[1]Institute for Applied Physics, University of Bern, Bern, Switzerland
[2]armasuisse Science and Technology, Thun, Switzerland

10:30 Coffee break

11:00 *"U-space field trials results for drone discrimination with a staring radar"* (A13)

Mohammed Jahangir[1,2],
[1]Aveillant, A Thales Company, 18-21 Evolution Business Park, Cambridge, UK CB24 9NG
[2]University of Birmingham, School of Engineering, Birmingham, UK B15 2TT

11:30 *"Wind turbine shutdown-on-demand using radar - Progress and challenges"* (A14)

Rob van der Meer, Siete Hamminga
ROBIN radar systems B.V., The Hague, The Netherlands

12:00 *"Exploring complex time-series representations for Riemannian machine learning of radar data"* (A15)

Daniel A. Brooks[1,2], Olivier Schwander[2], Frederic Barbaresco[1], Jean-Yves Schneider[1], Matthieu Cordy[2]
[1]Thales Air Systems, GBU LAS, Advanced Radar Concepts, Limours, France
[2]Sorbonne Universite, CNRS, Paris, France

12:30 Lunch

13:10 *"On wind-turbine robust radar systems"* (A16)

Arne Theil,
TNO The Hague, Netherlands

13:30 *"Mitigation techniques for wind turbine induced primary radar performance degradation"* (A17)

Bram Faes
Intersoft Electronics NV, Olen, Belgium

14:00 *"Radar echoes of individual wind turbines measured in L, S and C band"* (A18)

Jochen Bredemeyer[1], Thorsten Schrader[2], Marius Mihalachi[1]
[1]FCS Flight Calibration Services GmbH, Braunschweig, Germany
[2]Physikalisch-Technische Bundesanstalt (PTB), Fachbereich Hochfrequenz und Felder, Braunschweig, Germany

14:30 Coffee break

14:50 *"Smart-CFAR, a machine learning approach to floating level detection in radar"* (A19)

Marc Vizcarro i Carretero[1], Ronny Harmanny[2], Roeland Trommel[2]
[1]Delft University of Technology, the Netherlands
[2]Thales Nederland B.V., The Netherlands

15:10 *"Polarimetric Estimation of the Wind Turbines Angular Velocity"* (A20)

Valantis Kladogenis, Alexander Yarovoy
Delft University of Technology, the Netherlands

15:30 *"Theoretical and Experimental Investigation of Drone's Micro-Doppler Patterns"* A(21)

Yefeng Cai, Oleg Krasnov, Alexander Yarovoy
Delft University of Technology, the Netherlands

15:50 Closing