The Horizon 2020 Future Emerging Topics European **project VISORSURF** together with the Distributed School on Metamaterials run by **EUPROMETA**, the Education Department of the METAMORPHOSE VI AISBL and Department of Electronics and Nanoengineering of Aalto University will organize a **Doctoral School on Tunable and Software-Driven Functional Metasurfaces**. This school will be the 37th edition of the Distributed Doctoral School on Metamaterials. The school will be supported by the European School of Antennas (ESoA).

The school will be held at the premises of Aalto University in Espoo (the Helsinki region), Finland, on June 28-29, 2018.

Credits: **1 ECTS**
Dates: **28-29 June 2018**
Place: **Aalto University, Espoo, Finland**
Title of the Course: **Tunable and Software-Driven Functional Metasurfaces**
School Coordinators: **Prof. Sergei Tretyakov and Dr. Fu Liu, Aalto University, Finland**
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Abstract

Metasurfaces, engineered thin composite structures, have recently enabled the realization of novel electromagnetic and optical components with application-optimized and even un-natural functionalities. These include electromagnetic invisibility of objects (cloaking), total radiation absorption, filtering and steering of light and sound, as well as ultra-efficient, miniaturized antennas for sensors, implantable communication devices, and control of wave propagation. Making metasurfaces tunable, sensible, programmable, and (artificially) intelligent will offer virtually unlimited possibilities in controlling fields of various physical nature using thin intelligent skins. The VISORSURF project, which is organizing this school event, is developing hardware platforms and appropriate software solutions for first software-defined and software-driven metasurfaces for electromagnetic and optical applications. The doctoral school will introduce the participants into this exciting field of research, presenting the theoretical foundations of electromagnetic metasurfaces, various means to tune and control their properties, and provide examples of possible practical realizations. Application aspects will also be discussed. The school program contains lectures, an interactive session with the teachers, and a small test at the end of this two-day course.

For more information, check the school web site.

School Programme

Thursday, 28 June 2018

Time	Lecturer	Title
9:00 – 11:00	Sergei Tretyakov	Introduction to electromagnetic metasurfaces: motivation, properties, and modelling
11:00 – 11:20		*Break*
11:20 – 12:50	Christos Liaskos and Sergi Abadal	Software-defined and software-driven metasurface paradigm
13:00 – 14:00		*Lunch*
14:00 – 15:30	Eduard Alarcón	Wireless communications aspects within software-driven metasurfaces
15:30 – 16:00		*Break*
16:00 – 17:00	All teachers	Self-study and interactions with the lecturers
19:00 – 21:00		*School dinner*

Friday, 29 June 2018

Time	Lecturer	Title
9:00 – 11:00	Sergei Tretyakov and Fu Liu	Comparison of functionalities achievable by metasurfaces and phased arrays, possible tunability mechanisms and examples of realizations of tunable and digital metasurfaces
11:00 – 11:20		*Break*
11:20 – 12:50	Anna Tasolamprou and Xuchen Wang	Tunable fabric- and graphene-based designs
13:00 – 14:00		*Lunch*
14:00 – 15:00	Ian F. Akyildiz	Software, system, and application aspects
15:00 – 15:30		*Break*
15:30 – 17:00	All teachers	Discussion, conclusion and exam
17:00		*Closing ceremony*

37th EUPROMETA School
Tunable and Software-Driven Functional Metasurfaces
28-29 June 2018, Espoo, Finland