



5th European Doctoral School on Metamaterials

Tunable Metamaterials and Metasurfaces

Saint-Petersburg, Russia, October 4-6, 2006

Program:

Wednesday 4

Hour	Topic	Lecturer
9:00 - 10:00	Concept of metamaterials: Active and tunable artificial media	S. Tretyakov
10:00 - 11:00	Liquid crystals for a design of tunable components	S. Muller
11:00 - 11:15	Coffee break	
11:15 - 12:00	Liquid crystals for a design of tunable components	S. Muller
12:00 - 13:00	Ferroelectric materials: phase transition, dielectric response, microwave properties	O. Vendik
13:00 - 14:30	Lunch	
14:30 - 15:30	Ferroelectric materials: size effect, nano-structure phenomena, thin film tunability	O. Vendik
15:30 - 17:30	Nonlinear phenomena in thin ferrite films at microwaves	B. Kalinikos
17:30 - 17:45	Coffee break	
17:45 - 19:30	Self-study	

Thursday 5

Hour	Topic	Lecturer
8:15 - 10:15	Metasurfaces and tunable devices	S. Tretyakov
10:15 - 10:30	Coffee break	
10:30 - 12:15	Wave channelling in 2-D anisotropic L-C and TL lattice metamaterials with tunable parameters: phenomenology and properties	A. Shchuchinski
12:15 - 13:45	Lunch	
13:45 - 14:45	Forward and backward wave transmission lines	I. Vendik
14:45 - 15:45	Tunable left/right-handed transmission lines	I. Vendik
15:45 - 16:00	Coffee break	
16:00 - 17:30	Presentations of solutions to the problems. Assignments for the next day: study of important published papers.	O. Vendik, S. Zubko, D. Kholodnyak



Friday 6

Hour	Topic	Lecturer
8:15 - 10:15	Tunable metamaterials based on SRRs: design and applications	F. Martin
10:15 - 10:30	Coffee break	
10:30 - 12:15	Thin ferroelectric films as constituents of tunable varactors for microwave applications	S. Gevorgian
12:15 - 13:30	Lunch	
13:30 -15:00	Plenary discussion – presentation of self-study results	Chairman: I. Vendik
15:00 -15:15	Coffee break	
15:15 -16:15	Tunable microwave devices: phase shifters, filters. Commutation quality factor	I. Vendik
16:15 -17:00	Microwave devices based on switchable and tunable left/righthanded transmission lines	I. Vendik
17:00 -17:45	Concluding discussion	Chairman: S. Tretyakov