Master NN – Semester 2

Course : Negative Refraction Based Applications in Artificial Periodic Media

by Olivier VANBESIEN

Content (in english) :

1. INTRODUCTION
2. PHYSICAL APPROACHES FOR NEGATIVE REFRACTION
    - Basic concepts
    - The metamaterial approach: permittivity and permeability engineering
    - The photonic crystal approach: band structure engineering
3. NEGATIVE REFRACTION BASED APPLICATIONS
    - 2D Omega-type metamaterial based prism at microwaves
    - A periodically loaded backward transmission line at terahertz frequencies
    - A n = -1 photonic crystal based flat lens
4. BEYOND NEGATIVE REFRACTION: A 3D MATERIAL PARAMETER ENGINEERING
    - Introduction - overview
    - A photonic crystal based cloaking device
    - Transformation optics for a full dielectric electromagnetic cloak and a metal-dielectric planar hyper-lens
5. CONCLUSIONS

Planning :

Duration : 6 lessons – 1h30 each – Thursday morning 10h15-11h45
Dates : 2023 - January 12, 19 and 26, February 02 and 16, March 02
Location : to be precised