Xiaodong Wu

Office
College of Communication Engineering
Chongqing University
174 Sha Zheng Jie, Shapingba District
Main Teaching Building, Room 2616
Chongqing, 40070, China

Mobile:+86-188-8370-5280
Email: wuxiaod@foxmail.com
xiaodwu@cqu.edu.cn
ResearchGate:
https://www.researchgate.net/profile/Xiaodong_Wu25
Personal Pages: http://www.xiaodwu.me

Education

Sep.2017-Present
PhD of Engineering Degree in Electronic Science and Technology
Chongqing Univeristy, Chongqing, China (985, 211)

2014-2017
Master of Engineering Degree in Electronic Science and Technology
Chongqing Univeristy, Chongqing, China (985, 211)

2010-2014
Bachelor of Engineering Degree in Agricultural Mechanization and Automation
Huazhong Agricultural University, Wuhan, China (211)

Research Experience

Sept 2014-Present

Graduate Research Assistant
Chongqing University, Chongqing, China
Key Laboratory of Aerocraft Tracking, Telemetering & Command and Communication (Ministry of Education)

- Advisor: Prof. Hailin Cao
- Research activity:
  - *Metamaterial* and *Metasurface Property*: Chirality; Circular Dichroism (CD); Negative Refraction; Optical Activity; **Boundary Condition**; **Generalized Sheet Transition Conditions (GSTCs)**; **Surface Discountinuity; Susceptibility Tensor**; Retrieval method for metamaterial constitutive parameters.
  - *Tailoring electromagnetic waves*: conversion or rotation of the polarization of EM waves; achieving the asymmetric transmission phenomenon; manipulation the phase profile of circularly polarized (CP) waves by employing Pancharatnam-Berry (PB) phase; **Huygens Metasurface**.
  - *Microwave circuits and components:* design and analysis of the microstrip Yagi-Uda array antenna, helical antenna; Dual-frequency active RFID Tags using the 2.4GHz and 125KHz band; Local oscillator(LO) signal resource with low phase noise and spurious using the ADF4350.

Sept 2010-2014

Undergraduate Research Assistant
Huazhong Agricultural University, Wuhan, China
Electronic Design Contest Laboratory of College of Engineering and Technology

- Advisor: Prof. Yun Gao; Prof. Xuan Li
- Research activity:
  - *Spherical fruit automatic grading device based on SOPC* (Altera FPGA): Mainly responsible for fruit grading line machinery, light box processing, and the

peripheral hardware system includes line position detecting, pneumatic controlling and an alarm circuit design.

－*The ECG monitor based on CAN bus network:* Mainly responsible for the construction of the ECG acquisition and processing subsystem and the CAN bus node network platform. Mainly includes the pre-amplifier circuit, high and low pass filter circuit, 50Hz notch filter circuit, two stage amplifier circuit design, and design, micro-controller peripheral module circuit CAN interface circuit voltage lifting circuit.

－*Magic eyes tracking system based on NIOS II soft core vision:* Mainly responsible for the design of the system mainly includes CMOS camera control, image processing module, the expansion of the SRAM driver module, VGA display driver module, as well as the builder SOPC generation module. Mainly to achieve the acquisition of image data, the data integration pre-treatment, edge detection, contour extraction, as well as VGA display control.

－*Sound localization system based on MSP430F2618:* The voice receiving module is composed of a microphone receiver circuit, a UAF42 band pass filter circuit, a INA128 differential amplifier circuit, and a LM393 zero crossing comparison circuit. And produced by MSP430 chip 500Hz PWM wave to control the speaker sound module.

－*Single phase AC-DC converter circuit:* Mainly responsible for the DC-DC part of the Cuk circuit, TL494 control loop circuit design, MOS IR2110 tube drive circuit design.

－*Variable-rate sprayer machine using ultrasonic in orchard:* Mainly responsible for the design of ultrasonic inspection and control system. (Advisor: Prof. Qing Liu)

Honors and Awards

[1]. The Eighth “Challenge Cup” Hubei Province University Students Extracurricular Academic Science and Technology Competition Award **Second Prize (2011)**

[2]. The Sixth “Infineon Cup” National University Using Embedded Processor Design Contest **Second Prize (7/2012)**

[3]. “ALTERA Cup” SOPC, Electronic Design Competition for College Students in Hubei Province **Third Prize (10/2012)**

[4]. “TI Cup” Undergraduate Electronic Design Competition in Hubei Province **First Prize (8/2012)**

[5]. “TI Cup” National Undergraduate Electronic Design Contest Hubei division **Third Prize (2013)**

[6]. National College Students Innovation Training Program **Qualification certificate (2014)**

[7]. Excellent Graduate of Huazhong Agricultural University **6/2014**

[8]. The Second “Xiasha Cup” National Graduate Mobile Terminal Application Design Contest **Third Prize (2016)**

[9]. National Scholarship of Graduate Students **12/2016**

[10]. Tang Lixin Scholarship **10/2017**

Professional Memberships

IEEE Antenna Propagation Society (**IEEE AP-S**). Graduate Student Member (**2015-present**)

Xiaodong Wu

Publications

1. Xiaodong Wu, Hailin Cao. **"Broadband asymmetric transmission of linear polarization in tri-layered chiral metasurface."** in Proceedings of the 2016 IEEE International Symposium on Antennas and Propagation and USNC-URSI National Radio Science Meeting, Fajardo, Puerto Rico, June 26-July 1, 2016. (Oral presentation).
2. Hailin Cao, Xiaodong Wu , Zhoujian Chen , Chengzhuo Zhu , Xiaoheng Tan , Yongliang Zhang. **"Compact e-shape metasurface with dual-band circular polarization conversion."** Optics Communications 381 (2016): 48-55.
3. Hailin Cao, Xiaodong Wu, Yuwei Pi, Junjie Liu, Hang Xu, Zhengya Men, Yantao Yu, Jin Fan. **"A Novel chiral metamaterial circular polarizer based on e-shape structure."** in Proceedings of the 2016 IEEE International Symposium on Antennas and Propagation and USNC-URSI National Radio Science Meeting, Fajardo, Puerto Rico, June 26-July 1, 2016. (Oral presentation).
4. Hailin Cao, Xiaodong Wu, Junpeng Liu, Dian Li, Xiaoheng Tan, Jianmei Lei, Xianhua Han. **"Broadband Asymmetric Transmission of Linear Polarization in a Tri-layer Chiral Metasurface." Under Reviewing**
5. Hailin Cao, Huan Chen, Xiaodong Wu, Yuwei Pi, Junjie Liu, Hang Xu, Xiaoheng Tan, Jianmei Lei, Xian-Huan Han. **"Duan-band polarization angle independent 90^{o} polarization rotator using chiral metamaterial."** IEICE Electronics Express, 2016, 13(15): 20160583-20160583.
6. Hailin Cao, Jianshuo Liang, Xiaodong Wu. **"Dual-band polarization conversion based on non-twisted Q-shaped metasurface".** Optics Communications, 2016, 370: 311-318.
7. Hailiin Cao, Huan Chen, Junjie Liu, Xiaodong Wu, Yuwei Pi, Lisheng Yang. **"A design of dual band 90^{o} polarization using chiral metamaterial based on four V resonators."** in Proceedings of the 2016 IEEE International Symposium on Antennas and Propagation and USNC-URSI National Radio Science Meeting, Fajardo, Puerto Rico, June 26-July 1, 2016. (Oral presentation).

Research interest

My research interests now are applied electromagnetic, and using the metamaterials or metasurface to manipulation the electromagnetic wave. After reading a lot of related research papers and works of other research groups, I am currently working on the regulation of electromagnetic waves using boundary conditions of surface discontinuities.

Inspired by the theoretical deduction of the E. F. Kuester, C. L. Holloway and S. A. Tretyakov, and so many different excellent works like the C. Pfeiffer (loaded loops and wires forming the huygens metasurface) , A. Epstein (synthesis of passive lossless metasurface) and its analytical methodology of HMSs via the equivalence principle, etc, we find the key is how to design a practical engineering equivalent magnetic impedance surface together with the electric surface finally constituting the Huygens metamaterials. There are several loaded loop aspects like by vias, by stacking multiple PCBs, by capacitive coupling, etc. But for now, no one is without drawbacks. So on the one hand I attempt to review the current trends in HMS fields, on the other hand I also have been doing the some works designing the novel huygens sources.