杨帅

电话: +966-567011667/+86-13910784661　　现于 IMPACT 实验室, KAUST, 沙特阿拉伯
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专业技能

- 拥有 5 年打印电子器件、高频电路和柔性电路的经验。具体的打印机包括 Dimatix Inkjet Printer，Screen Printer，super inkjet printer（SIJ）。
- 熟练使用 ADS 和 CST 仿真软件来设计高频电路-滤波器
- 在博士期间，拥有 5 年的高频器件测试经验，熟练运用高频探针台和 Wincal 软件进行高频器件的测量。
- 熟悉整套超净间的电子微加工流程。拥有 5 年超净间仪器使用经验，包括：薄膜沉积 (sputter，e-beam，PECVD，ALD)， 刻蚀 (干法和湿法)，mask writer，contact aligner， SEM， 台阶仪等。
- 熟练使用 Python 和 TensorFlow。运用 Keras 和 TensorFlow 进行人工神经网络的搭建。

教育背景

PhD 阿卜杜拉国王科技大学（KAUST） 2015-2020
电子专业(微波及打印电子方向)
论文题目：“Additively Manufactured Vanadium Dioxide (VO_2) based Radio Frequency Switches and Reconfigurable Components”(预计 2020 年 7 月毕业)
导师: Prof. Atif Shamim

MS 香港科技大学（HKUST） 2012-2013
IC 设计专业

BS 北京工业大学 2007-2011
电子专业

科研经历

基于二氧化钒（VO_2）的高频开关以及它在可调高频电子器件上的应用。 2017-2020

- 研制和优化了针对喷墨打印以及丝印的二氧化钒油墨，针对此新型墨汁对喷墨打印机（Dimatix 2831）和丝印机进行参数优化；
- 对基于可打印二氧化钒的高频开关进行设计，制作和高频测试；
- 设计，打印并测试基于二氧化钒高频开关的柔性带通滤波器；
- 使用 Python 语言通过 Keras 在 TensorFlow 上搭建一个基于人工神经网络的二氧化钒高频开关模型；

基于乙酸铜的低成本全打印湿度和硫化氢（H_2S）气体传感器。 2016-2017

基于半导体型碳纳米管（s-CNT）的全打印场效应晶体管。 2015-2016

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PROFESSIONAL SKILLS

- Experienced in additive manufacturing of electronics through inkjet printer, screen printer and super inkjet printer
- Design and optimization of RF electronics (schematic and layout level) in ADS or CST
- RF device measurement and characterization (probe station, Wincal)
- Experienced in nanofabrication processes: deposition (sputter, e-beam, PECVD), etching (wet etching and dry etching), mask alignment, laser writer, SEM, etc.
- Experienced in building neural network for modeling with Python and TensorFlow

EDUCATION

PhD King Abdullah University of Science and Technology 2015-2020
Major in Electrical Engineering (Microwaves and Additive Manufacturing)
Thesis Title: "Additively Manufactured Vanadium Dioxide (VO_2) based Radio Frequency Switches and Reconfigurable Components" (Graduation in 2020 July)
Advisor: Prof. Atif Shamim

MS Hong Kong University of Science and Technology 2012-2013
Major in IC Design Engineering

BS Beijing University of Technology 2007-2011
Major in Electrical Science and Technology

RESEARCH EXPERIENCE

VO_2 based RF switch and its applications in reconfigurable RF devices 2017-2020

- Creation of printing recipes and optimization of printing processes for inkjet printing and screen-printing of VO_2 ink
- Design, fabrication and characterization of fully printed VO_2 RF switches
- Design, fabrication and characterization of fully printed reconfigurable filters based on VO_2 switch
- Modelling of the printed RF switch based on artificial neural network (machine learning).

Copper acetate-based low cost and fully printed humidity and hydrogen sulfide (H_2S) gas sensor 2016-2017

Design and fabrication of fully printed Carbon nanotube (CNT) based transistor 2015-2016

发表文章/PUBLICATIONS

Journal Papers

- **S. Yang**, M. Vaseem, and A. Shamim, "Fully Inkjet-Printed VO_2-Based Radio-Frequency Switches for Flexible Reconfigurable Components," *Adv. Mater. Technol*., vol. 4, no. 1, p. 1800276, 2019.
- **S. Yang**, W. Li., M. Vaseem, and A. Shamim, "Additively Manufactured Dual Mode Reconfigurable Filter Employing VO_2 Based Switches", (*IEEE Transactions on Components, Packaging and Manufacturing Technology),* under review.
- **S. Yang**, A. Khusro, W. Li, M. Vaseem, and A. Shamim, "ANN based Modelling of Printed VO_2 RF switch for Reconfigurable RF applications", (*IEEE Transactions on Microwave Theory and Techniques),* under preparation.
- M. Vaseem, S. Zhen, **S. Yang**, W. Li, and A. Shamim, "Development of VO_2-Nanoparticle-Based Metal–Insulator Transition Electronic Ink," *Adv. Electron. Mater*., vol. 5, no. 5, p. 1800949, 2019.
- W. Li, **S. Yang**, and A. Shamim, "Screen printing of silver nanowires: balancing conductivity with transparency while maintaining flexibility and stretchability," *Nature (npj) Flexible Electron*ics, vol. 3, no. 1, pp. 1–8, Jul. 2019.
- Quddious, **S. Yang**, M. M. Khan, F. A. Tahir, A. Shamim, K. N. Salama, H. M. Cheema, "Disposable, Paper-Based, Inkjet-Printed Humidity and H2S Gas Sensor for Passive Sensing Applications," *Sensors*, vol. 16, no. 12, p. 2073, Dec. 2016.

Conference Papers

- S. Yang, W. Li, M. Vaseem, A. Shamim, "Fully Printed VO_2 Switch Based Flexible and Reconfigurable Filter", in 2020 IEEE MTT-S International Microwave Symposium (IMS), 2020.(Accepted)
- F. A. Ghaffar, S. Yang, H. M. Cheema, and A. Shamim, "A 24 GHz CMOS oscillator transmitter with an inkjet printed on-chip antenna," in 2016 IEEE MTT-S International Microwave Symposium (IMS), 2016, pp. 1–3.
- M. Vaseem, S. Zhen, S. Yang, and A. Shamim, "A Fully Printed Switch Based on VO_2 Ink for Reconfigurable RF Components," in 2018 48th European Microwave Conference (EuMC), 2018, pp. 487–490.
- Z. Su, M. Vaseem, W. Li, S. Yang, and A. Shamim, "Additively Manufactured Frequency/Radiation Pattern Reconfigurable Antenna Based on Monolithically Printed VO_2 Switch," in 2019 13th European Conference on Antennas and Propagation (EuCAP), 2019, pp. 1–4.
- M. Vaseem, Z. Su, S. Yang, and A. Shamim, "Flexibility Assessment of Fully Inkjet-Printed Reconfigurable Antenna with VO_2 Switch," in 2018 IEEE Indian Conference on Antennas and Propagation (InCAP), 2018, pp. 1–2.
- S. Yang, S. Zhen, and A. Shamim, "Fully Inkjet Printed 85GHz Band Pass Filter on Flexible Substrate," in 2018 48th European Microwave Conference (EuMC), 2018, pp. 652–654.
- M. Vaseem, Z. Su, S. Yang, and A. Shamim, "Fully Printed Flexible and Reconfigurable Antenna with Novel Phase Change VO_2 Ink Based Switch," in 2018 International Flexible Electronics Technology Conference (IFETC), 2018, pp. 1–2.
- Z. Su, M. Vaseem, S. Yang, W. Li, K. Klionovski, and A. Shamim, "Fully Printed VO_2 Switch Based Reconfigurable PIFA / T-shaped Monopole Antenna," in 2018 18th

International Symposium on Antenna Technology and Applied Electromagnetics (ANTEM), 2018, pp. 1–2.
- Z. Su, M. Vaseem, S. Yang, K. Klionovski, and A. Shamim, “Fully Printed VO_2 Switch Based Reconfigurable PIFA Antenna,” in 2018 IEEE International Symposium on Antennas and Propagation USNC/URSI National Radio Science Meeting, 2018, pp. 1683–1684.