**Binbin Weng, PhD**

**Gerald Tuma Presidential Associate Professor**

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**Norman, Oklahoma 73019**

**Education**

B.A. Physics Xiamen University 2006

M.S. Semiconductor Physics Zhejiang University 2008

Ph.D. Electrical & Computer Engineering University of Oklahoma 2012

**Research and Professional Experience**

2024 – present **Associate Professor of Electrical & Computer Engineering**

University of Oklahoma, Norman OK

2023 – present **Faculty Fellow of Institute of Resilient Environmental and Energy System**

University of Oklahoma, Norman OK

2018 – present **Faculty Director of University’s Nanofab Laboratories**

University of Oklahoma, Norman OK

2015 – 2018 **Research Scientist of OU’s Microfabrication Research & Education Center**

University of Oklahoma, Norman OK

2012 – 2015 **Postdoctoral Researcher of Opto-Electronic Research Group**

University of Oklahoma, Norman OK

**Publications most closely related to the project**

1. Weng, Binbin. "The road to climate change mitigation via methane emissions monitoring." *Nature Reviews Electrical Engineering* 1, no. 2 (2024): 69-70.
2. Xia, Lipeng, Yuheng Liu, Ray T. Chen, Binbin Weng, and Yi Zou. "Advancements in miniaturized infrared spectroscopic-based volatile organic compound sensors: A systematic review." *Applied Physics Reviews* 11, no. 3 (2024).
3. Weng, Binbin. "Photonic crystal gas sensor." U.S. Patent # 11,624,742, U.S. Patent and Trademark Office, (2023).
4. Hemati, Tahere, and Binbin Weng. "The mid-infrared photonic crystals for gas sensing applications." *Photonic Crystals—A Glimpse of the Current Research Trends* (2019).
5. Weng, Binbin, Jijun Qiu, Lihua Zhao, Zijian Yuan, Caleb Chang, and Zhisheng Shi. "Recent development on the uncooled mid-infrared PbSe detectors with high detectivity." In *Quantum Sensing and Nanophotonic Devices XI*, vol. 8993, pp. 178-185. SPIE, (2014).

**Other significant publications whether or not related to the proposed project**

1. Hemati, Tahere, Yi Zou, and Binbin Weng. "High-q surface light emission from active parity-time-symmetric gratings." *Physical Review Applied* 17, no. 4 (2022): 044023.
2. Arledge, Kiernan E., Bruno Uchoa, Yi Zou, and Binbin Weng. "Topological sensing with photonic arrays of resonant circular waveguides." *Physical Review Research* 3, no. 3 (2021): 033106.
3. Hemati, Tahere, Xintong Zhang, and Binbin Weng. "A direct oriented-attachment growth of lead-chalcogenide mid-infrared nanocrystals film on amorphous substrates." *Journal of Materials Chemistry C* 8, no. 38 (2020): 13205-13212.
4. Weng, Binbin, Jijun Qiu, Zijian Yuan, Preston R. Larson, Gregory W. Strout, and Zhisheng Shi. "Responsivity enhancement of mid-infrared PbSe detectors using CaF2 nano-structured antireflective coatings." *Applied Physics Letters* 104, no. 2 (2014).
5. Qiu, Jijun, Binbin Weng, Zijian Yuan, and Zhisheng Shi. "Study of sensitization process on mid-infrared uncooled PbSe photoconductive detectors leads to high detectivity." *Journal of applied physics* 113, no. 10 (2013).

**Synergistic activities**

1. *Project “AIMNet”*

Dr. Weng is the lead investigator of this DOE funded technology implementation project to showcase a new surface sensing/modeling network in the Anadarko Basin’s oil and gas land for monitoring and quantifying methane emission events at a basin scale.

1. *Other relevant contracts and grants*

Dr. Weng is a co-lead investigator of a DOE iM4 program funded research initiative project to plan and formulate for an “all-in-one” integrated methane monitoring platform capable of continuous methane monitoring and reporting, facilitating swift responses to detected methane emissions.

1. *OU “Big Idea Challenge” Program*

“Big Idea Challenge” is a Strategic Initiative launched by the OU Vice President for Research and Partnerships aiming at addressing global grand challenges. Dr. Weng was the lead investigator of a multi- disciplinary team of over 20 campus-wide researchers to tackle greenhouse-gas-emission-induced societal issues in the environment, health, energy, and community sustainability.

1. *Relevant media coverage on missions from oil and gas systems*

OU’s grand efforts on methane emission monitoring spearheaded by Dr. Weng has been reported/featured by OPTICA’s Optical and Photonics News in the article “Monitoring Methane to Curb Climate Change”; Oklahoma Educational Television Authority (OETA) TV Channel (https://youtu.be/ek6O25Q2Pdo?si=BWGbGZNZwS-l3ZUA); and the university’s sooner magazine https://soonermag.oufoundation.org/stories/pinpointing-the-problem.