

# Stanford

---

## Cheng-Tai Kuo

Staff Engineer, SLAC National Accelerator Laboratory

### Bio

---

#### LINKS

- My website: <https://sites.google.com/prod/view/ctkuo>

### Publications

---

#### PUBLICATIONS

- **MXene Nanosheets Functionalized with Cu Atoms for Urea Adsorption in Aqueous Media** *ACS APPLIED NANO MATERIALS*  
Yen, Z., Salim, T., Boothroyd, C., Haywood, P., Kuo, C., Lee, S., Lee, J., Cho, D., Lam, Y.  
2023
- **A broken translational symmetry state in an infinite-layer nickelate** *NATURE PHYSICS*  
Rossi, M., Osada, M., Choi, J., Agrestini, S., Jost, D., Lee, Y., Lu, H., Wang, B., Lee, K., Nag, A., Chuang, Y., Kuo, C., Lee, et al  
2022
- **Synthesis and electronic properties of epitaxial SrNiO<sub>3</sub>/SrTiO<sub>3</sub> superlattices** *PHYSICAL REVIEW MATERIALS*  
Wang, L., Zhao, J., Kuo, C., Matthews, B. E., Oostrom, M. T., Spurgeon, S. R., Yang, Z., Bowden, M. E., Wangoh, L. W., Lee, S., Lee, J., Guo, E., Wang, et al  
2022; 6 (7)
- **Orientation-Controlled Anisotropy in Single Crystals of Quasi-1D BaTiS<sub>3</sub>** *CHEMISTRY OF MATERIALS*  
Zhao, B., Bin Hoque, M., Jung, G., Mei, H., Singh, S., Ren, G., Milich, M., Zhao, Q., Wang, N., Chen, H., Niu, S., Lee, S., Kuo, et al  
2022
- **Emergent phenomena at oxide interfaces studied with standing-wave photoelectron spectroscopy** *JOURNAL OF VACUUM SCIENCE & TECHNOLOGY A*  
Kuo, C., Conti, G., Rault, J. E., Schneider, C. M., Nemsak, S., Gray, A. X.  
2022; 40 (2)
- **Probing the polar-nonpolar oxide interfaces using resonant x-ray standing wave techniques** *JOURNAL OF VACUUM SCIENCE & TECHNOLOGY A*  
Kuo, C., Lin, S., Chuang, Y.  
2022; 40 (1)
- **Orbital contributions in the element-resolved valence electronic structure of Bi<sub>2</sub>Se<sub>3</sub>** *PHYSICAL REVIEW B*  
Kuo, C., Lin, S., Rueff, J., Chen, Z., Aguilera, I., Bihlmayer, G., Plucinski, L., Graff, I. L., Conti, G., Vartanyants, I. A., Schneider, C. M., Fadley, C. S.  
2021; 104 (24)
- **High resolution depth profiling using near-total-reflection hard x-ray photoelectron spectroscopy** *JOURNAL OF VACUUM SCIENCE & TECHNOLOGY A*  
Rault, J. E., Kuo, C., Martins, H. P., Conti, G., Nemsak, S.  
2021; 39 (6)
- **Interface Carriers and Enhanced Electron-Phonon Coupling Effect in Al<sub>2</sub>O<sub>3</sub>/TiO<sub>2</sub> Heterostructure Revealed by Resonant Inelastic Soft X-Ray Scattering** *ADVANCED FUNCTIONAL MATERIALS*  
Shao, Y., Kuo, C., Feng, X., Chuang, Y., Seok, T., Choi, J., Park, T., Cho, D.  
2021
- **Two-dimensional electron systems in perovskite oxide heterostructures: Role of the polarity-induced substitutional defects** *PHYSICAL REVIEW MATERIALS*  
Lin, S., Kuo, C., Shao, Y., Chuang, Y., Geessinck, J., Huijben, M., Rueff, J., Graff, I. L., Conti, G., Peng, Y., Bostwick, A., Gullikson, E., Gullikson, et al

2020; 4 (11)

- Hard x-ray standing-wave photoemission insights into the structure of an epitaxial Fe/MgO multilayer magnetic tunnel junction *JOURNAL OF APPLIED PHYSICS*  
Conlon, C. S., Conti, G., Nemsak, S., Palsson, G., Moubah, R., Kuo, C., Gehlmann, M., Ciston, J., Rault, J., Rueff, J., Salmassi, F., Stolte, W., Rattanachata, et al 2019; 126 (7)
- Depth-resolved resonant inelastic x-ray scattering at a superconductor/half-metallic-ferromagnet interface through standing wave excitation *PHYSICAL REVIEW B*  
Kuo, C., Lin, S., Ghiringhelli, G., Peng, Y., De Luca, G., Di Castro, D., Betto, D., Gehlmann, M., Wijnands, T., Huijben, M., Meyer-Ilse, J., Gullikson, E., Kortright, et al 2018; 98 (23)
- Atomic-layer-resolved composition and electronic structure of the cuprate Bi<sub>2</sub>Sr<sub>2</sub>CaCu<sub>2</sub>O<sub>8+delta</sub> from soft x-ray standing-wave photoemission *PHYSICAL REVIEW B*  
Kuo, C., Lin, S., Conti, G., Pi, S., Moreschini, L., Bostwick, A., Meyer-Ilse, J., Gullikson, E., Kortright, J. B., Nemsak, S., Rault, J. E., Le Fevre, P., Bertran, et al 2018; 98 (15)
- Interface properties and built-in potential profile of a LaCrO<sub>3</sub>/SrTiO<sub>3</sub> superlattice determined by standing-wave excited photoemission spectroscopy *PHYSICAL REVIEW B*  
Lin, S., Kuo, C., Comes, R. B., Rault, J. E., Rueff, J., Nemsak, S., Taleb, A., Kortright, J. B., Meyer-Ilse, J., Gullikson, E., Sushko, P., Spurgeon, S. R., Gehlmann, et al 2018; 98 (16)
- Element- and momentum-resolved electronic structure of the dilute magnetic semiconductor manganese doped gallium arsenide *NATURE COMMUNICATIONS*  
Nemsak, S., Gehlmann, M., Kuo, C., Lin, S., Schlueter, C., Mlynaczak, E., Lee, T., Plucinski, L., Ebert, H., Di Marco, I., Minar, J., Schneider, C. M., Fadley, et al 2018; 9: 3306
- Characterization of free-standing InAs quantum membranes by standing wave hard x-ray photoemission spectroscopy *APL MATERIALS*  
Conti, G., Nemsak, S., Kuo, C., Gehlmann, M., Conlon, C., Keqi, A., Rattanachata, A., Karslioglu, O., Mueller, J., Sethian, J., Bluhm, H., Rault, J. E., Rueff, et al 2018; 6 (5)
- Nitride Semiconductor Nanorod Heterostructures for Full-Color and White-Light Applications *III-NITRIDE SEMICONDUCTOR OPTOELECTRONICS*  
Gwo, S., Lu, Y. J., Lin, H. W., Kuo, C. T., Wu, C. L., Lu, M. Y., Chen, L. J., Mi, Z., Jagadish, C.  
2017; 96: 341–84
- Superconductor to Mott insulator transition in YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7</sub>/LaCaMnO<sub>3</sub> heterostructures *SCIENTIFIC REPORTS*  
Gray, B. A., Middey, S., Conti, G., Gray, A. X., Kuo, C., Kaiser, A. M., Ueda, S., Kobayashi, K., Meyers, D., Kareev, M., Tung, I. C., Liu, J., Fadley, et al 2016; 6: 33184
- X-ray Absorption Spectroscopy Study of the Effect of Rh doping in Sr<sub>2</sub>IrO<sub>4</sub> *SCIENTIFIC REPORTS*  
Sohn, C. H., Cho, D., Kuo, C., Sandilands, L. J., Qi, T. F., Cao, G., Noh, T. W.  
2016; 6: 23856
- The energy band alignment at the interface between mechanically exfoliated few-layer NiPS<sub>3</sub> nanosheets and ZnO *CURRENT APPLIED PHYSICS*  
Kuo, C., Balamurugan, K., Shiu, H., Park, H., Sinn, S., Neumann, M., Han, M., Chang, Y., Chen, C., Kim, H., Park, J., Noh, T.  
2016; 16 (3): 404–8
- Exfoliation and Raman Spectroscopic Fingerprint of Few-Layer NiPS<sub>3</sub> Van der Waals Crystals *SCIENTIFIC REPORTS*  
Kuo, C., Neumann, M., Balamurugan, K., Park, H., Kang, S., Shiu, H., Kang, J., Hong, B., Han, M., Noh, T., Park, J.  
2016; 6: 20904
- Insulating-layer formation of metallic LaNiO<sub>3</sub> on Nb-doped SrTiO<sub>3</sub> substrate *APPLIED PHYSICS LETTERS*  
Yoo, H., Chang, Y., Moreschini, L., Kim, H., Sohn, C., Sinn, S., Oh, J., Kuo, C., Bostwick, A., Rotenberg, E., Noh, T.  
2015; 106 (12)
- Experimental Determination of Electron Affinities for InN and GaN Polar Surfaces *APPLIED PHYSICS EXPRESS*  
Lin, S., Kuo, C., Liu, X., Liang, L., Cheng, C., Lin, C., Tang, S., Chang, L., Chen, C., Gwo, S.  
2012; 5 (3)

- **Plasmonic Green Nanolaser Based on a Metal-Oxide-Semiconductor Structure** *NANO LETTERS*  
Wu, C., Kuo, C., Wang, C., He, C., Lin, M., Ahn, H., Gwo, S.  
2011; 11 (10): 4256–60
- **Natural band alignments of InN/GaN/AlN nanorod heterojunctions** *APPLIED PHYSICS LETTERS*  
Kuo, C., Chang, K., Shiu, H., Liu, C., Chang, L., Chen, C., Gwo, S.  
2011; 99 (12)
- **Spontaneous-polarization-induced heterojunction asymmetry in III-nitride semiconductors** *APPLIED PHYSICS LETTERS*  
Kuo, C., Chang, K., Shiu, H., Lin, S., Chen, C., Gwo, S.  
2011; 99 (2)
- **Is electron accumulation universal at InN polar surfaces?** *APPLIED PHYSICS LETTERS*  
Kuo, C., Lin, S., Chang, K., Shiu, H., Chang, L., Chen, C., Tang, S., Gwo, S.  
2011; 98 (5)
- **Effects of (NH<sub>4</sub>)<sub>2</sub>S-x treatment on indium nitride surfaces** *JOURNAL OF APPLIED PHYSICS*  
Chang, Y., Lu, Y., Hong, Y., Kuo, C., Gwo, S., Yeh, J.  
2010; 107 (4)
- **Valence band offset and interface stoichiometry at epitaxial Si<sub>3</sub>N<sub>4</sub>/Si(111) heterojunctions formed by plasma nitridation** *APPLIED PHYSICS LETTERS*  
Lee, H., Kuo, C., Shiu, H., Chen, C., Gwo, S.  
2009; 95 (22)
- **Direct imaging of GaN p-n junction by cross-sectional scanning photoelectron microscopy and spectroscopy** *APPLIED PHYSICS LETTERS*  
Kuo, C., Lee, H., Shiu, H., Chen, C., Gwo, S.  
2009; 94 (12)
- **Electronic Properties of III-Nitride Surfaces and Interfaces Studied by Scanning Photoelectron Microscopy and Spectroscopy** *Symposium on III-Nitride Materials for Sensing, Energy Conversion and Controlled Light-Matter Interactions, at the 2009 MRS Fall Meeting*  
Kuo, C., Lee, H., Wu, C., Shiu, H., Chen, C., Gwo, S.  
MATERIALS RESEARCH SOC .2009: 1202-I04-03
- **Immobilization of DNA-Au nanoparticles on aminosilane-functionalized aluminum nitride epitaxial films for surface acoustic wave sensing** *APPLIED PHYSICS LETTERS*  
Chiou, C., Lee, H., Kuo, C., Gwo, S.  
2008; 93 (16)
- **Absence of Fermi-level pinning at cleaved nonpolar InN surfaces** *PHYSICAL REVIEW LETTERS*  
Wu, C., Lee, H., Kuo, C., Chen, C., Gwo, S.  
2008; 101 (10): 106803
- **Cross-sectional scanning photoelectron microscopy and spectroscopy of wurtzite InN/GaN heterojunction: Measurement of "intrinsic" band lineup** *APPLIED PHYSICS LETTERS*  
Wu, C., Lee, H., Kuo, C., Chen, C., Gwo, S.  
2008; 92 (16)
- **Polarization-induced valence-band alignments at cation- and anion-polar InN/GaN heterojunctions** *APPLIED PHYSICS LETTERS*  
Wu, C., Lee, H., Kuo, C., Gwo, S., Hsu, C.  
2007; 91 (4)