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Engineering & Scientific Consulting

Yuzki Oey, Ph.D.

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Professional Profile

Dr. Oey is a materials engineer with expertise in materials characterization, materials synthesis, structure-property relationships, and magnetic materials. She has experience using X-ray diffraction (XRD), energy-dispersive X-ray spectroscopy (EDS), X-ray fluorescence (XRF), and magnetometry. Dr. Oey routinely conducts materials evaluations in root cause analysis of consumer electronics, consumer products and other systems.

Prior to joining Exponent, Dr. Oey completed her doctoral work at University of California, Santa Barbara, where she studied novel magnetocaloric materials and superconducting kagome metals using high temperature synthesis and air sensitive materials. Her work involved developing new syntheses procedures to efficiently and systematically modify chemical compositions to determine the effects on observable properties. Specifically, she studied how small changes in structure can affect magnetic transition temperatures, since understanding these structure-property relationships is crucial in developing new materials with desirable practical properties.

Academic Credentials & Professional Honors

Ph.D., Materials, University of California, Santa Barbara, 2022

A.B., Chemistry, Princeton University, 2019

National Science Foundation Graduate Research Fellowship, 2019-2022

Languages

Japanese

Publications

Li H, Zhao H, Ortiz BR, Oey YM, Wang Z, Wilson SD, Zeljkovic I. Unidirectional coherent quasiparticles in the high-temperature rotational symmetry broken phase of AV3Sb5 kagome superconductors. Nature Physics, 2023; 1-7.

Kautzsch L, Oey YM, Li H, Ren Z, Ortiz BR, Pokharel G, Seshadri R, Ruff J, Kongruengkit T, Harter JW, Wang Z, Zeljkovic I, Wilson SD. Incommensurate charge-stripe correlations in the kagome superconductor CsV3Sb5-xSnx. npj Quantum Materials, 2023; 37.

Li H, Oh D, Kang M, Zhao H, Ortiz BR, Oey YM, Fang S, Ren Z, Jozwiak C, Bostwick A, Rotenberg E, Checkelsky JG, Wang Z, Wilson SD, Comin R, Zeljkovic I. Small Fermi pockets intertwined with charge

stripes and pair density wave order in a kagome superconductor. Physical Review X, 2023; 13:031030.

Kang M, Fang S, Yoo J, Ortiz BR, Oey YM, Ryu SH, Kim J, Jozwiak C, Bostwick A, Rotenberg E, Kaxiras E, Checkelsky J, Wilson SD, Park J, Comin R. Charge order landscape and competition with superconductivity in kagome metals. Nature Materials 2023; 22.

Oey YM, Kaboudvand F, Ortiz BR, Seshadri R, Wilson SD. Tuning charge-density wave order and superconductivity in the kagome metals KV3Sb5-xSnx and RbV3Sb5-xSnx. Physical Review Materials 2022; 6:074802.

Oey YM, Ortiz BR, Kaboudvand F, Frassineti J, Garcia E, Cong R, Sanna S, Mitrovic V, Seshadri R, Wilson SD. Fermi level tuning and double-dome superconductivity in the kagome metals CsV3Sb5-xSnx. Physical Review Materials 2022; 6:L041801.

Singha R, Yuan F, Cheng G, Salters TH, Oey YM, Villalpando GV, Jovanovic M, Yao N, Schoop LM. TaCo2Te2: An air-stable, high mobility Van der Waals material with probable magnetic order. Advanced Functional Materials 2021; 2108920.

Schueller EC, Oey YM, Miller KD, Wyckoff KE, Zhang R, Zhang W, Wilson SD, Rodinelli JM, Seshadri R. AB2X6 compounds and the stabilization of trirutile oxides. Inorganic Chemistry 2021; 60:9224-9232.

Oey YM, Kitchaev DA, Bocarsly JD, Schueller EC, Cooley JA, Seshadri R. Magnetocaloric behavior and magnetic ordering in MnPdGa, Physical Review Materials 2021; 5:014414.

Oey YM, Bocarsly JD, Mann D, Levin EE, Shatruk M, Seshadri R. Structural changes upon magnetic ordering in magnetocaloric AlFe2B2. Applied Physics Letters 2020; 116:212403.

Oey YM, Cava RJ. The effective magnetic moments of Co2+ and Co3+ in SrTiO3 investigated by temperature-dependent magnetic susceptibility. Materials Research Bulletin 2020; 122:110667.

Wang W, Sun K, Oey YM, Cava RJ, Wu L, Zhu Y, Yu R, Tao J. Smectic and nematic phase modulations and transitions under electron beam in Tb2Cu0.83Pd0.17O4. Physical Review Materials 2019; 3:093601.

Oey YM, Park JE, Tao J, Carnicom EM, Kong T, Sanders MB, Cava RJ. Stabilizing the Tb-based 214 cuprate by partial Pd substitution. Journal of Materials Research 2018; 33:1690-1697.

Presentations

Oey YM, Kaboudvand F, Ortiz BR, Seshadri R, Wilson D. Tuning transitions in AV3Sb5 kagome metals. Poster presentation, Gordon Research Seminar and Conference in Solid State Chemistry, New London, NH, 2022.

Oey YM, Ortiz BR, Seshadri R, Wilson D. Double dome superconductivity and suppression of charge density wave in the kagome metals CsV3Sb5-xSnx. Invited talk, Materials Research Society Spring Meeting, Honolulu, HI, 2022.

Oey YM, Ortiz BR, Seshadri R, Wilson D. Double dome superconductivity and suppression of charge density wave in the kagome metals CsV3Sb5-xSnx. Invited talk, American Chemical Society Spring Meeting, San Diego, CA, 2022.

Oey YM, Sanders MB, Park JE, Cava RJ. Stabilizing the Tb-based 214 cuprate by partial Pd substitution. Poster presentation, Gordon Research Seminar and Conference in Solid State Chemistry, New London, NH, 2018.

Peer Reviews

Chemistry of Materials