

Erica Calman

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Education

PHD | SEPTEMBER 2019 | U.C. SAN DIEGO

- Physics

B.S. | JUNE 2012 | U.C. DAVIS

- Physics

Skills & Abilities

OPTICS AND PHOTONICS

- 9 years of experience designing and building optical setups and performing optical measurements. Skilled in usage and maintenance of ultraviolet, visible, and infrared laser systems, including Ti:Sapphire. Skilled in optical spectroscopy and microscopy, including interferometry, polarization-resolved and time-resolved measurements. Experience designing and characterizing photonics devices including interferometers, ring resonators, waveguides, couplers, etc.

DATA ANALYSIS AND PROGRAMMING

- Highly proficient in MATLAB and Python, experience with C, C++ and LabVIEW. Highly experienced in usage of fitting tools, image analysis and statistical analysis of data. Experience with simulation software including Lumerical and Comsol.

LITHOGRAPHY

- - Extensive experience in fabrication of nano-scale semiconductor devices via photolithography processes. Use of sputtering, electron beam evaporation, dry and wet etching, ultraviolet contact mask lithography, metrology tools, thin film measurements systems and AFM.

ELECTRONICS

- Extensive hands-on experience with oscilloscopes, networks analyzers, pulse generators, RFsignal generators, and integration of optical and electrical components for scientific measurements. Experience with computer-controlled instruments with LABVIEW and matlab.

Experience

POSTDOCTORAL APPOINTEE | SANDIA NATIONA LABORATORIES | SEPTEMBER 2020 SEPTEMBER 2021

- Postdoctoral researcher working on silicon photonics, heterogeneous integration and integrated photonics.

GRADUAED STUDENT RESEARCHER | U.C. SAN DIEGO | SEPTEMBER 2012 – SEPTEMBER 2019

- Graduate student researcher in condensed matter physics. See attached publication list.

Publications

E. V. Calman, L. H. Fowler-Gerace, D. J. Choksy, L. V. Butov, D. E. Nikonov, I. A. Young, S. Hu, A. Mishchenko, and A. K. Geim. [Indirect excitons and trions in MoSe₂/WSe₂ van der Waals heterostructures](#), [arXiv:1901.08664](#) (2019), Nano Lett. 20, 1869 (2020).

E.V. Calman, M.M. Fogler, L.V. Butov, S. Hu, A. Mishchenko, A.K. Geim. [Indirect excitons in van der Waals heterostructures at room temperature](#), [arXiv:1709.07043](#) (2017), Nature Commun. 9, 1895 (2018).

C. J. Dorow, M. W. Hasling, **E. V. Calman**, L. V. Butov, J. Wilkes, K. L. Campman, and A. C. Gossard. [Spatially and time-resolved imaging of transport of indirect excitons in high magnetic fields](#), [arXiv:1705.09077](#) (2017), Phys. Rev. B 95, 235308 (2017).

Y. Y. Kuznetsova, C. J. Dorow, **E. V. Calman**, L. V. Butov, J. Wilkes, K. L. Campman, and A. C. Gossard. [Transport of indirect excitons in high magnetic fields](#), [arXiv:1610.03116v1](#) (2016), Phys. Rev. B 95, 125304 (2017).

E. V. Calman, C. J. Dorow, M. M. Fogler, L. V. Butov, S. Hu, A. Mishchenko, A. K. Geim. [Control of excitons in multi-layer van der Waals heterostructures](#), [arXiv:1510.04410](#) (2015), Appl. Phys. Lett. 108, 101901 (2016).

Y. Y. Kuznetsova, F. Fedichkin, P. Andreakou, **E. V. Calman**, L. V. Butov, P. Lefebvre, T. Bretagnon, T. Guillet, M. Vladimirova, C. Morhain, and J.M. Chauveau. [Transport of indirect excitons in ZnO quantum wells](#), [arXiv:1503.03089](#) (2015), Opt. Lett. 40 (15), 3667-3670 (2015).

Y.Y. Kuznetsova, P. Andreakou, M.W. Hasling, J.R. Leonard, **E.V. Calman**, L.V. Butov, M. Hanson, A.C. Gossard. [Two-dimensional snowflake trap for indirect excitons](#), Opt. Lett. 40, 589 (2015).

P. Andreakou, S.V. Poltavtsev, J.R. Leonard, **E.V. Calman**, M. Remeika, Y.Y. Kuznetsova, L.V. Butov, J. Wilkes, M. Hanson, A.C. Gossard. [Optically controlled excitonic transistor](#), [arXiv.org:1310.7842](#) (2013), Appl. Phys. Lett. 104, 091101 (2014).

Other

Department of Energy L clearance issued July 2021