

Sonia García Blanco
Associate Professor
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Qualifications

PhD, University of Glasgow
1 Oct 1999 → 1 Oct 2002
Award Date: 17 Jul 2003

Employment

Associate Professor

Optical Sciences
University of Twente
1 Aug 2021 → present

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1 Jan 2018 → present

Awards

Projects

Research output

Gain simulation of erbium-doped Al₂O₃ waveguide amplifiers for LiDAR applications

Osornio Martinez, C. E., Coulaud, Q., Canat, G. & García Blanco, S. M., 25 Nov 2021.

High-temperature recrystallization effects in swift heavy ion irradiated KY(WO₄)₂

Frentrop, R. N., Tormo-marquez, V., Segerink, F. B., Pujol, M. C., Olivares, J. & Garcia-blanco, S. M., 14 Nov 2021, In: Journal of Applied Physics. 130, 18, 185109.

8×40 Gbps WDM amplification in a monolithically integrated Al₂O₃:Er³⁺-Si₃N₄ waveguide amplifier

Chrysostomidis, T., Mu, J., Roumpos, I., Fotiadis, K., Manolis, A., Vagionas, C., Dijkstra, M., Garcia-Blanco, S. M., Alexoudi, T. & Vysokinos, K., 1 Nov 2021, In: IEEE photonics technology letters. 33, 21, p. 1177-1180 4 p.

480 Gbps WDM Transmission Through an Al₂O₃:Er³⁺ Waveguide Amplifier

Chrysostomidis, T., Roumpos, I., Fotiadis, K., Mu, J., Manolis, A., Vagionas, C., Dijkstra, M., Garcia Blanco, S. M., Alexoudi, T. & Vysokinos, K., 20 Oct 2021, (E-pub ahead of print/First online) In: Journal of lightwave technology. p. 1-1

Lossless Silicon Photonic ROADM based on a Si₃N₄ platform and a Monolithically Integrated Erbium Doped Amplifier

Vagionas, C., Tsakyridis, A., Chrysostomidis, T., Roumpos, I., Fotiadis, K., Manolis, A., Mu, J., Dijkstra, M., Blanco, S. G., Oldenbeuving, R. M., van Dijk, P. W. L., Roeloffzen, C. G. H., Vysokinos, K., Pleros, N. & Alexoudi, T., 26 Jul 2021, 2021 Optical Fiber Communications Conference and Exhibition, OFC 2021 - Proceedings. IEEE, 9489625

320 Gb/s WDM Transmission in Monolithically Integrated Al₂O₃:Er³⁺ Spiral Amplifier on Si₃N₄

Chrysostomidis, T., Roumpos, I., Fotiadis, K., Mu, J., Manolis, A., Vagionas, C., Dijkstra, M., Blanco, S. M. G., Vysokinos, K. & Alexoudi, T., May 2021, 2021 Conference on Lasers and Electro-Optics, CLEO 2021 - Proceedings. IEEE

Poly-crystalline low-loss aluminium oxide waveguides

Hendriks, W. A. P. M., Dijkstra, M., Hegeman, I., Segerink, F. B., Keim, E. G., Dikkers, M. J. & García-Blanco, S. M., 5 Mar 2021, *Integrated Optics: Devices, Materials, and Technologies XXV*. Garcia-Blanco, S. M. & Cheben, P. (eds.). SPIE Press, Vol. 11689. 116890Z. (Proceedings of SPIE - The International Society for Optical Engineering; vol. 11689).

Modular microring laser cavity sensor

Chang, L., Goede, M. D., Dijkstra, M., van Emmerik, C. I. & García-Blanco, S. M., 18 Jan 2021, In: *Optics express*. 29, 2, p. 1371-1383 13 p.

Mode-splitting in a microring resonator for self-referenced biosensing

de Goede, M., Dijkstra, M., Chang, L., Acharyya, N., Kozyreff, G., Obregón, R., Martínez, E. & García-Blanco, S. M., 4 Jan 2021, In: *Optics express*. 29, 1, p. 346-358 13 p.

Rare-earth ion doped Al₂O₃ for active integrated photonics

Hendriks, W. A. P. M., Chang, L., Van Emmerik, C. I., Mu, J., De Goede, M., Dijkstra, M. & Garcia-blanco, S. M., 1 Jan 2021, In: *Advances in Physics: X*. 6, 1, 24 p., 1833753.

320 Gb/s WDM transmission in monolithically integrated Al₂O₃: Er³⁺ spiral amplifier on Si₃N₄

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Lossless 1×4 Silicon Photonic ROADM based on a Monolithic Integrated Erbium Doped Waveguide Amplifier on a Si₃N₄ platform

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Lossless silicon photonic ROADM based on a Si₃N₄ platform and a monolithically integrated Erbium Doped Amplifier

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Redeposition-Free Deep Etching in Small KY(WO₄)₂ Samples

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High-gain waveguide amplifiers in Si₃N₄ technology via double-layer monolithic integration

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High-performance 90° hybrids based on MMI couplers in Si₃N₄ technology

Yu, J., Mu, J., Chen, K., de Goede, M., Dijkstra, M., He, S. & García-Blanco, S. M., 15 Jun 2020, In: *Optics communications*. 465, 125620.

Relative oxidation state of the target as guideline for depositing optical quality RF reactive magnetron sputtered Al₂O₃ layers

van Emmerik, C. I., Hendriks, W. A. P. M., Stok, M. L., de Goede, M., Chang, L., Dijkstra, M., Segerink, F., Post, D., Keim, E. G., Dikkers, M. J. & García-Blanco, S. M., 1 Jun 2020, In: *Optical materials express*. 10, 6, p. 1451-1462 12 p.

High refractive index low-loss aluminium oxide waveguides

Hendriks, W. A. P. M., Dijkstra, M., van Emmerik, C. I., Hegeman, I. & García Blanco, S. M., Jun 2020.

Study on multiple waveguide platforms for waveguide integrated Raman spectroscopy

Lee, W., Munoz-Galindo, P., Hegeman, I., Yong, Y-S., Dijkstra, M., Garcia-Blanco, S. M. & Offerhaus, H. L., 15 May 2020, In: OSA Continuum. 3, 5, p. 1322-1333

Development of low-loss TiO_2 waveguides

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Low loss TiO_2 channel waveguides

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$\text{Al}_2\text{O}_3:\text{Yb}^{3+}$ integrated microdisk laser label-free biosensor

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V zquez-C rdova, S. A., Aravazhi, S., Heuer, A. M., Kr nkel, C., Yong, Y-S., Garc a-Blanco, S. M., Herek, J. L. & Pollnau, M., 1 Dec 2019, In: Optical materials express. 9, 12, p. 4782-4795 14 p.

In-depth structural analysis of swift heavy ion irradiation in $\text{KY}(\text{WO}_4)_2$ for the fabrication of planar optical waveguides

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Comparative study of multiple thiol-based self-assembled monolayer coatings for the SERS detection of nitrite, nitrate, and perchlorate anions in water

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Lithography and reactive ion etching optimization towards low-loss TiO_2 waveguides

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Dynamics of Yb^{3+} doped Al_2O_3 microlasers

van Leeuwen, O., Chang, L. & Garc a Blanco, S. M., 21 Nov 2019.

Monolithic integration of $\text{Al}_2\text{O}_3:\text{Er}^{3+}$ amplifiers in Si_3N_4 technology

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Performance parameter decoupled high efficiency micro ring laser cavity for biosensing

Chang, L., De Goede, M., Dijkstra, M., Van Emmerik, C. I. & Garcia-Blanco, S. M., 17 Oct 2019, *2019 Conference on Lasers and Electro-Optics Europe and European Quantum Electronics Conference, CLEO/Europe-EQEC 2019*. IEEE, 8872286. (2019 Conference on Lasers and Electro-Optics Europe and European Quantum Electronics Conference, CLEO/Europe-EQEC 2019).

Lapping and Polishing of Crystalline $\text{KY}(\text{WO}_4)_2$: Toward High Refractive Index Contrast Slab Waveguides

Van Emmerik, C., Kooijman, R., Dijkstra, M. & Garcia-blanco, S., 4 Oct 2019, In: Micromachines. 10, 10, 674.

Monolithic Integration of Al_2O_3 and Si_3N_4 Toward Double-Layer Active-Passive Platform

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High index contrast photonic platforms for on-chip Raman spectroscopy

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23079 13 p.

Pedestal microdisks in potassium yttrium double tungstate

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Heterogeneous integration of KY(WO₄)₂-on-glass: A bonding study

van Emmerik, C. I., Frentrop, R., Dijkstra, M., Segerink, F., Kooijman, R., Muneeb, M., Roelkens, G., Ghibaud, E., Broquin, J-E. & Garcia-blanco, S. M., 15 Jun 2019, In: *OSA Continuum*. 2, 6, p. 2065-2076 12 p.

Resonant Coupling for Active-Passive Monolithic Integration of Al₂O₃ and Si₃N₄

Mu, J., Dijkstra, M. & García-Blanco, S. M., 15 May 2019, In: *IEEE photonics technology letters*. 31, 10, p. 771-774 4 p., 8674816.

Noise analysis of a resonance sensor platform for enhanced limit of detection

Hendriks, W. A. P. M., Korterik, J. P., de Goede, M., Dijkstra, M. & García Blanco, S. M., 13 May 2019.

Double metal layer lift-off process for the robust fabrication of plasmonic nano-antenna arrays on dielectric substrates using e-beam lithography

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Gain dynamics in a highly ytterbium-doped potassium double tungstate thin-film amplifier

Yong, Y. S., Aravazhi, S., Vázquez-Córdova, S. A., Herek, J. L., García-Blanco, S. M. & Pollnau, M., 1 Jan 2019, *Solid State Lasers XXVIII: Technology and Devices*. Clarkson, W. A. & Shori, R. K. (eds.). SPIE, Vol. 10896. 108961G. (Proceedings of SPIE - The International Society for Optical Engineering; vol. 10896).

E-beam lithography for integrated optical systems

de Goede, M., Muñoz Galindo, P., Hegeman, I., Dijkstra, M. & García Blanco, S. M., 2019.

Sputter deposition for optical quality oxide layers

Stok, M., van Emmerik, C. I., Hendriks, W. A. P. M., Hegeman, I., Dijkstra, M. & García Blanco, S. M., 2019.

Development of low-loss TiO₂ waveguides

Hegeman, I., Vissers, E. J. P., Dijkstra, M. & García Blanco, S. M., 15 Nov 2018.

Single-layer active-passive Al₂O₃ at the wafer level: optimization study

van Emmerik, C. I., Dijkstra, M., Chang, L., de Goede, M., Mu, J. & García Blanco, S. M., 15 Nov 2018.

Al₂O₃ Microresonator Based Passive and Active Biosensors

De Goede, M., Chang, L., Dijkstra, M., Obregon, R., Ramon-Azcon, J., Martinez, E., Padilla, L., Adan, J., Mitjans, F. & Garcia-Blanco, S. M., 26 Sep 2018, *2018 20th International Conference on Transparent Optical Networks, ICTON 2018*. IEEE Computer Society, Vol. 2018-July. 8473820. (International Conference on Transparent Optical Networks; vol. 2018-July).

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Raman Spectroscopy, Free Space and On-Chip

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High optical gain in erbium-doped potassium double tungstate channel waveguide amplifiers

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High index contrast passive potassium double tungstate waveguides

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High quality factor Al₂O₃ microring resonators for on-chip sensing applications

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A novel polishing stop for accurate integration of potassium yttrium double tungstate on a silicon dioxide

Van Emmerik, C. I., Martinussen, S. M., Mu, J., Dijkstra, M., Kooijman, R. & García-Blanco, S. M., 1 Jan 2018, *Integrated Optics: Devices, Materials, and Technologies XXII: Devices, Materials, and Technologies XXII*. García-Blanco, S. M. & Cheben, P. (eds.). SPIE, Vol. 10535. p. 27 105350U. (INTEGRATED OPTICS: DEVICES, MATERIALS, AND TECHNOLOGIES XXII).

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High-contrast slab waveguide fabrication in KY(WO₄)₂ by swift heavy ion irradiation

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Pedestal disk resonator in potassium yttrium double tungstate

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Reducing redeposition on KYW waveguides through hard mask engineering

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Low-loss, broadband and high fabrication tolerant vertically tapered optical couplers for monolithic integration of Si₃N₄ and polymer waveguides

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Al₂O₃ Microring Resonator for Disease Biomarker Detection

de Goede, M., Dijkstra, M., Obregon Nunez, R., Martinez, E. & García Blanco, S. M., 25 Sep 2017.

Towards an active biosensing platform in rare-earth ion doped Al₂O₃ microring resonators

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High optical gain in KGdxLuyEr_{1-x-y}(WO₄)₂ waveguide amplifiers despite energy-transfer upconversion

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Temperature dependence of the transition cross sections of rare-earth ions

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High gain in erbium-doped channel waveguides

Vázquez-Córdova, S. A., Aravazhi, S., Grivas, C., Yong, Y. S., García-Blanco, S. M., Herek, J. L. & Pollnau, M., 26 Jun 2017, *The European Conference on Lasers and Electro-Optics, CLEO_Europe 2017*. Optical Society of America, Vol. Part F82-CLEO_Europe 2017. 139018

Temperature dependence of transition cross sections in rare-earth-doped laser materials

Yong, Y. S., Aravazhi, S., Vázquez-Córdova, S. A., Herek, J. L., García-Blanco, S. M. & Pollnau, M., 26 Jun 2017, *The European Conference on Lasers and Electro-Optics, CLEO_Europe 2017*. Optical Society of America, Vol. Part F82-CLEO_Europe 2017. 139018

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Roughness reduction through chemical etching of amorphized residues

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Double Al₂O₃ Microring Resonator for Self-Referenced Sensing Applications

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Spectroscopy of erbium-doped potassium double tungstate waveguides

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Temperature-dependent absorption and gain of ytterbium-doped potassium double tungstates for chip-scale amplifiers and lasers

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Ultra-low-loss and broadband mode converters in Si₃N₄ technology

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Towards High Contrast Potassium Double Tungstate Rib Waveguides For Laser Applications

van Emmerik, C. I., Martinussen, S. M., Mu, J., Sefünc, M., Dijkstra, M. & García Blanco, S. M., 17 Jan 2017.

Direct confocal lifetime measurements on rare-earth-doped media exhibiting radiation trapping

Yong, Y. S., Aravazhi, S., Vázquez-Córdova, S. A., Carvajal, J. J., Diaz, F., Herek, J. L., García Blanco, S. M. & Pollnau, M., 2017, In: *Optical materials express*. 7, 2, p. 527-532

Al₂O₃ microring resonators as a novel refractive index sensing platform

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Er-doped potassium double tungstate channel waveguides with high optical gain

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Influence of temperature on the transition cross-sections and the optical gain of highly Yb-doped potassium double tungstates

Yong, Y. S., Aravazhi, S., Vázquez-Córdova, S. A., Herek, J. L., García Blanco, S. M. & Pollnau, M., 17 Nov 2016, p. -.

Low-loss highly tolerant vertical couplers for hybrid integration of Si₃N₄ and multimode polymer waveguides

Mu, J., Dijkstra, M., Yong, Y. S., Vázquez-Córdova, S. A. & García Blanco, S. M., 17 Nov 2016, p. -.

Towards High Contrast Potassium Double Tungstate Rib Waveguides For Laser Applications

van Emmerik, C. I., Martinussen, S. M., Mu, J., Sefünc, M., Dijkstra, M. & García Blanco, S. M., 17 Nov 2016, p. -.

13 dB/cm gain per unit length at 1.53 µm in KGdxLuxEr_{1-x-y}(WO₄)₂ channel waveguides, allowing for ~40 dB total gain

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Al₂O₃ waveguide microring resonators as a novel biosensing platform

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Towards High Contrast Potassium Double Tungstate Rib Waveguides For Laser Applications

van Emmerik, C. I., Martinussen, S. M., Mu, J., Sefünc, M., Dijkstra, M. & García Blanco, S. M., 4 Sep 2016, p. -.

Optical gain of 13 dB/cm at ~1.53 µm in KGdxLuxEr_{1-2x}(WO₄)₂ channel waveguides and the influence of parasitic spectroscopic processes

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