

Michel Digonnet

Professor (Research) of Applied Physics

Bio

ACADEMIC APPOINTMENTS

- Professor-Research, Applied Physics

Teaching

COURSES

2023-24

- Optics and Electronics Seminar: APPPHYS 483 (Aut)

STANFORD ADVISEES

Postdoctoral Faculty Sponsor

Bastien Van Esbeen, Song Zhu

Doctoral Dissertation Advisor (AC)

Mohammed Azzouz, Simon Bongarz, Hongxiang Jia

Publications

PUBLICATIONS

- **Emerging Trends in Laser-Cooling of Yb-Doped Silicate Fibers** *JOURNAL OF LIGHTWAVE TECHNOLOGY*
Chen, C., Meehan, B., Cahoon, M., Hawkins, T. W., Ballato, J., Dragic, P. D., Engholm, M., Boilard, T., Bernier, M., Digonnet, M. J. F.
2025; 43 (14): 6839-6845
- **Moisture-Induced Bias Drift in a Fiber-Optic Gyroscope** *JOURNAL OF LIGHTWAVE TECHNOLOGY*
Pillon, J., Rattier, M., Molucon, C., Boiron, H., Louf, F., Boucard, P., Digonnet, M. J. F., Lefevre, H. C.
2025; 43 (12): 5904-5914
- **Compact, Low Noise, Dual FP Etalons Based External Cavity Diode Laser for Micro-Vibration Sensing Systems** *JOURNAL OF LIGHTWAVE TECHNOLOGY*
Chen, C., Wei, F., Han, X., Su, Q., Pi, H., Liang, H., Liu, Z., Sun, Y., Wu, H., Gao, K., Ye, Q., Cai, H.
2025; 43 (9): 4306-4313
- **Chip-Scale Resonant Optical Gyroscope With Near Earth-Rate Sensitivity** *IEEE SENSORS JOURNAL*
Zawada, A. N., Jin, W., Abrams, N., Feshali, A., Paniccia, M., Digonnet, M. J. F.
2025; 25 (7): 10949-10956
- **Calibration of a High-Resolution Slow-Light Fiber-Bragg-Grating Sensor for Temperature Measurements of Laser-Cooled Fibers** *JOURNAL OF LIGHTWAVE TECHNOLOGY*
Chen, C., Balliu, E., Talbot, L., Boilard, T., Meehan, B., Hawkins, T. W., Ballato, J., Bernier, M., Digonnet, M. J. F.
2024; 42 (20): 7391-7397
- **Optical cooling of a Yb-doped alumino-phosphosilicate fiber in air by -250 mK.** *Optics letters*

- Chen, C., Meehan, B., Hawkins, T. W., Ballato, J., Dragic, P. D., Boilard, T., Bernier, M., Digonnet, M. J.
2024; 49 (16): 4501-4504
- **Impact of Yb²⁺ on the anti-Stokes fluorescence cooling performance of Yb-doped silica fibers** *OPTICAL MATERIALS EXPRESS*
Meehan, B., Pietros, A. R., Chen, C., Hawkins, T. W., Engholm, M., Dragic, P. D., Digonnet, M. J. F., Ballato, J.
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 - **Low-Drift Fiber-Optic Gyroscope Interrogated With Multiple Broadened Semiconductor Lasers** *JOURNAL OF LIGHTWAVE TECHNOLOGY*
Jia, H., Wheeler, J. M., Iantosca, T., Digonnet, M. J. F.
2024; 42 (13): 4666-4673
 - **Prospects and challenges for all-optical thermal management of fiber lasers** *JOURNAL OF PHYSICS D-APPLIED PHYSICS*
Ballato, J., Dragic, P. D., Digonnet, M. J. F.
2024; 57 (16)
 - **High-efficiency radiation-balanced Yb-doped silica fiber laser with 200-mW output** *OPTICS LETTERS*
Balliu, E., Meehan, B., Cahoon, M., Hawkins, T. W., Ballato, J., Dragic, P. D., Boilard, T., Talbot, L., Bernier, M., Digonnet, M. J. F.
2024; 49 (8): 2021-2024
 - **Self-Aligning Optical MEMS Acoustic Sensors With nPa/ $\sqrt{\text{Hz}}$ Resolution** *IEEE SENSORS JOURNAL*
Afshar, B., Digonnet, M. J. F.
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 - **Single-mode radiation-balanced Yb-doped silica fiber laser and amplifier**
Balliu, E., Meehan, B., Cahoon, M., Hawkins, T. W., Ballato, J., Dragic, P. D., Boilard, T., Talbot, L., Bernier, M., Digonnet, M. J. F.
edited by Seletskiy, D. V., Kuno, M. K., Pauzauskie, P. J.
SPIE-INT SOC OPTICAL ENGINEERING.2024
 - **Modular Aptamer Switches for the Continuous Optical Detection of Small-Molecule Analytes in Complex Media.** *Advanced materials (Deerfield Beach, Fla.)*
Hariri, A. A., Cartwright, A. P., Dory, C., Gidi, Y., Yee, S., Thompson, I. A., Fu, K., Yang, K., Wu, D., Maganzini, N., Feagin, T., Young, B. E., Afshar, et al
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 - **Optical Fiber Sensors: introduction to the feature issue** *APPLIED OPTICS*
Cranch, G. A., Digonnet, M., Dragic, P., Peters, K., Schulzgen, A., Wang, A., Yang, L.
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 - **High-Resolution Slow-Light Fiber-Bragg-Grating Microphone and Hydrophone** *IEEE SENSORS JOURNAL*
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 - **Optically Managing Thermal Energy in High-power Yb-doped Fiber Lasers and Amplifiers: A Brief Review** *CURRENT OPTICS AND PHOTONICS*
Yu, N., Ballato, J., Digonnet, M. J. F., Dragic, P. D.
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 - **A Low-Drift Laser-Driven FOG Suitable for Trans-Pacific Inertial Navigation** *JOURNAL OF LIGHTWAVE TECHNOLOGY*
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 - **Optimization of the Angular Random Walk in Laser-Driven Fiber-Optic Gyroscopes** *IEEE SENSORS JOURNAL*
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- **Anti-Stokes Cooling of Nanoparticle-Doped Silica Fibers**

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edited by Jauregui-Misas, C., Supradeepa, V. R.
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- **Rotation sensitivity and shot-noise-limited detection in an exceptional-point coupled-ring gyroscope *OPTICS LETTERS***

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- **Optimizing Coherence Suppression in a Laser Broadened by Phase Modulation With Noise *JOURNAL OF LIGHTWAVE TECHNOLOGY***

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- **Laser cooling in a silica optical fiber a atmospheric pressure** *OPTICS LETTERS*
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- **Loss-Gain Coupled Ring Resonator Gyroscope**
Grant, M. J., Digonnet, M. J. F.
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- **Experimental investigations of spectroscopy and anti-Stokes fluorescence cooling in Yb-doped silicate fibers**
Knall, J. M., Arora, A., Dragic, P., Ballato, J., Cavillon, M., Hawkins, T., Jiang, S., Luo, T., Bernier, M., Digonnet, M.
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- **High-resolution slow-light fiber Bragg grating temperature sensor with phase-sensitive detection** *OPTICS LETTERS*
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- **Pseudo-random-bit-sequence phase modulation for reduced errors in a fiber optic gyroscope** *OPTICS LETTERS*
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 - **Miniature fiber acoustic sensors using a photonic-crystal membrane** *OPTICAL FIBER TECHNOLOGY*
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