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Advance Programme

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- European Physical Society / Quantum Electronics and Optics Division
- IEEE Photonics Society
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ROOM 1 ICM

ROOM 4a ICM

EA-5.3 TUE (Invited) 16:30

Solitons and droplets in two-component Bose-Einstein condensates

C.R. Cabrera, J. Sanz, A. Frohman, C. Christofin, P. Thomas, B. Naylor, L. Tanzi, P. Cheiney, and •L. Tarruell, ICFO-The Institute of Photonic Sciences, Castelldefels, Spain

Self-bound states result from a balance between attractive and repulsive forces. We experimentally explore two types of self-bound states, stemming from repulsive forces of different origins, in two-component Bose-Einstein condensates: bright solitons and liquid droplets.

ROOM 4b ICM

EE-5.3 TUE 16:30

Soliton-plasma interactions and dispersive-wave emission beyond two-photon resonances in Gas-filled Hollow Capillary Fibres

•T. Grigorova, C. Brahm, F. Belli, and J. Travers, School of Engineering and Physical Sciences, Heriot-Watt University, Edinburgh, United Kingdom

We demonstrate soliton self-compression and VUV dispersive-wave emission in argon- and krypton-filled hollow capillary fibre. We observe plasma-related frequency shifts in the dispersive wave as well as VUV generation, even below two-photon resonances.

ROOM 13a ICM

CB-6.2 TUE 16:30

Design strategies for power scaling of GasB-based superluminescent diodes for 2 - 3 μ m wavelength range

•N. Zia, J. Viheriala, E. Koivusalo, A. Antti Aho, and M. Guina, Tampere University, Tampere, Finland

We demonstrate a double-pass GasB-based superluminescent diode emitting output power as high as 120 mW around 2 μ m and having 40 nm spectral width. The performance is benchmarked against design involving single-pass.

ROOM 13b ICM

CD-6.3 TUE 16:30

Third Harmonic Generation in Highly-Doped Silica Glass Micro Ring Resonator•Y. Li¹, J. Zhao², R. Davidson³, L. Wang⁴, S. Wang⁵, B. Little⁶, and S. Chu¹, ¹Department of Physics, City University of Hong Kong, Hong Kong, China; ²QXP Technology Inc., Xi'an, China; ³QXP Technology Inc., Xi'an, China; ⁴State Key Laboratory of Transient Optics and Photonics, XIOPM, CAS, Xi'an, China; ⁵Department of Physics, City University of Hong Kong, Hong Kong, China; ⁶State Key Laboratory of Transient Optics and Photonics, XIOPM, CAS, Xi'an, China; ⁷Department of Physics, City University of Hong Kong, Hong Kong, China

Third harmonic generation (THG) was demonstrated experimentally using a 200GHz microring resonator on the platform of high-index-silica glass for the first time. Effects of temperature and fundamental pump wavelength tuning on THG intensity were studied.

CD-6.4 TUE 16:45

Critical Dynamics of a Nonlinear Enhanced Microresonator Gyroscope•J. Silver^{1,2}, L. Del Bino^{1,3}, M. Woolley^{1,3}, S. Zhang¹, A. Sveta^{1,4}, G. Chantalot^{1,4}, N. Moroney^{1,4}, and P. Del'Haye¹, ¹National Physical Laboratory, London, United Kingdom; ²City, University of London, London, United Kingdom; ³Heriot-Watt University, Edinburgh, United Kingdom; ⁴Imperial College London, London, United Kingdom

We measure the dynamical response of a nonlinear enhanced optical microresonator gyroscope operating close to the critical point of symmetry breaking between counterpropagating light. We compare the results to simulations based on a theoretical model.

CJ-9.2 TUE 16:45

Singlemode Kilowatt Fibre Laser with Adjustable Beam Profile and M2•N. Vuković¹, J. Chan¹, C. Codemard^{1,2}, M. Zervas^{1,2}, S. Keen², V. Ruseva², R. Jesser², I. Botheroyd², and M. Greenwood², ¹Advanced Laser Laboratory, Optoelectronics Research Centre, University of Southampton, Southampton, United Kingdom; ²SPI Lasers UK Ltd, Southampton, United Kingdom

We report on a kW-class fibre laser with singlemode output from a multimode delivery fibre with adjustable beam profile using a dynamic mode coupler. The M2 of the output beam varies from 1.12 to 7.

EE-5.4 TUE 16:45

Single-Shot Time-Resolved Phase and Intensity Measurement of Breathers in the Nonlinear Stage of Modulation Instability

A. Lebel, A. Tkach, S. Randoux, P. Suret, and •F. Copie, University of Lille, CNRS, UMR 8523 - Physique des Lasers Atomes et Molécules (PhLAM), Lille, France

We present single-shot measurements of ultra-fast nonlinear structures generated by the modulation instability in fiber optics. Our improved temporal imaging setup enables recording of both intensity and phase of the field, allowing its detailed analysis.

CB-6.3 TUE 16:45

Ring Interband Cascade Lasers for Environmental Monitoring•H. Kröing¹, B. Hinkov¹, M. Holzbauer¹, R. Seckl¹, H. Deitz², R. Weh¹, S. Höfling^{3,4}, W. Schrenk², J. Koeth³, J.P. Wadlawek⁵, B. Lendl⁶, and G. Strasser¹, ¹Institute of Solid State Electronics and Center for Micro- and Nanostructures, TU Wien, Vienna, Austria; ²Austrian Academy of Sciences, Vienna, Austria; ³nanoplus Nanosystems GmbH, Technologies, Gerbrunn, Germany; ⁴Physikalisches Institut und Wilhelm Conrad Röntgen Research Center for Complex Material Systems, University Würzburg, Würzburg, Germany; ⁵Institute of Chemical Technologies and Analytics, TU Wien, Vienna, Austria

We present latest results on ring-shaped interband cascade lasers with a second order distributed feedback grating for substrate emission. They are designed for better heat transport and suppression of higher order lateral modes.