

# LIST OF PUBLICATIONS

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## List of publications in international refereed journals

1. Ben Khalifa, A., Cherif, R., Ben Salem, A., "Ultra-high sensitivity with different taper geometries of thin-core fiber modal interferometer for refractive index sensing," **Optical engineering**, volume 58, Issue 2, 1 February 2019, Article number 026109.
2. Ashish K. Ghunawat, Rim Cherif, Ghanshyam Singh, "Ultra-high nonlinear polarization maintaining dispersion compensating photonic crystal fiber," **Optica Applicata**, Vol. XLIX, No. 1, 2019
3. A. Ben Khalifa, A. Ben Salem, R. Cherif, "Mid-infrared supercontinuum generation in multimode As<sub>2</sub>Se<sub>3</sub> chalcogenide photonic crystal fiber," **Applied optics** 56 (15), pp. 4319-4324 (2017).
4. M. Diouf, R. Cherif, A. Ben Salem, A. Wague, "Ultra-Broadband, coherent mid-IR supercontinuum expanding from 1.5 to 12.2  $\mu\text{m}$  in new design of AsSe<sub>2</sub> photonic crystal fiber," **Journal of Modern Optics**, vol 64, pp. 1335-1341 (2017).
5. M. Diouf, A. Ben Salem, R. Cherif, H. Saghaei, A. Wague, "Super-flat coherent supercontinuum source in As<sub>38.8</sub>Se<sub>61.2</sub> Chalcogenide Photonic Crystal Fiber with All-Normal Dispersion engineering at Very Low Input Energy," **Applied Optics** 56(2) 163-169 (2017).
6. L. Mandeng Mandeng; C. Tchawoua; H. Tagwo; M. Zghal; R. Cherif; A. Mohamadou, "Role of the Input Profile Asymmetry and the Chirp on the Propagation in Highly Dispersive and Nonlinear Fibers," **Journal of Lightwave Technology**, Volume: 34, Issue: 24, pp. 5635 – 5641 (2016).
7. M. Diouf, A. Ben Salem, R. Cherif, A. Wague, M. Zghal, "High power broadband mid-infrared supercontinuum fiber laser using a novel chalcogenide AsSe<sub>2</sub> photonic crystal fiber," **Optical Materials** 55, 10-16 (2016).
8. A. Ben Salem, A. Trichili, R. Cherif, and M. Zghal, "Rigorous study of supercontinuum generation in few mode fibers," **Applied optics**, vol. 55, Issue 16, pp. 4317-4322 (2016).
9. A. Ben Salem, M. Diouf, R. Cherif, A. Wague, and M. Zghal, "Ultra flat-top mid-infrared coherent broadband supercontinuum using all normal As<sub>2</sub>S<sub>5</sub>-Borosilicate hybrid photonic crystal fiber," **Optical Engineering** 55(6), 066109 (2016), doi: 10.1117/1.OE.55.6.066109.

10. A. Baili, R. Cherif, M. Zghal, "Two octaves spanning supercontinuum in highly nonlinear As<sub>2</sub>Se<sub>3</sub> microfiber for mid-infrared applications," **Journal of Nanophotonics**; 9(1):093059 (2015). doi: 10.1117/1.JNP.9.093059.
11. R. Cherif, A. Ben Salem, M. Zghal, T. S. Saini, A. Kumar, R. K. Sinha, "Design of small core tellurite PCF for slow light based application using SBS," **Optical Engineering** 54(7), 075101 (2015).
12. T. S. Saini, A. Baili, A. Kumar, R. Cherif, M. Zghal, R. K. Sinha, "Design and analysis of equiangular spiral photonic crystal fiber for mid-IR supercontinuum generation," **Journal of Modern Optics**, Vol. 62 , Iss. 19, pp. 1570-1576 (2015).
13. A. Baili, R. Cherif, M. Zghal, "Maximizing the bandwidth of coherent, mid-IR supercontinuum using highly nonlinear aperiodic nanofibers," **Journal of Modern Optics**, vol. 61, iss. 8, pp. pages 650-661, (2014).
14. A. Ben-Salem, R. Cherif, M. Zghal, "Performance improvement in Mach–Zehnder interferometer-based refractive index sensor using elliptical photonic nanowires," **Journal of Modern Optics**, vol. 61, iss. 3, pp. 263- 269, DOI: 10.1080/09500340.2014.880523 (2014).
15. R. Cherif, M. Zghal, "Ultrabroadband, Midinfrared Supercontinuum Generation in Dispersion Engineered As<sub>2</sub>Se<sub>3</sub>-Based Chalcogenide Photonic Crystal Fibers," *International Journal of Optics*, article ID 876474, volume 2013 (2013).
16. T. Cheng, R. Cherif, M. Liao, W. Gao, M. Zghal, Z. Duan, T. Suzuki and Y. Ohishi, "Stimulated brillouin scattering of higher-order acoustic modes in four-core tellurite microstructured optical fiber," **Applied Physics Express** 5 (10), art. no. 102501 (2012).
17. A. Ben-Salem, R. Cherif, M. Zghal, "Highly nonlinear tapered photonic crystal fibers for broadband Mid-IR supercontinuum generation in the few-optical-cycle regime," **Optical Engineering** 51(10), p. 105008 (2012).
18. Ben-Salem, R. Cherif, M. Zghal, "Rigorous optical modeling of elliptical photonic nanowires," **Journal of Lightwave Technology** 30 (13) , art. no. 6179496, pp. 2176-2180 (2012).
19. R. Cherif, M. Zghal, L. Tartara, "Characterization of stimulated Brillouin scattering in small core microstructured chalcogenide fiber," **Optics Communications**, 285 (3), pp. 341-346 (2012).
20. J.P. Burger, A. Ben-Salem, R. Cherif, M. Zghal, "Methodology for in situ characterisation of a highly birefringent photonic crystal fibre for supercontinuum generation," *Transactions of the South African Institute of Electrical Engineers* 103 (1), pp. 35-40 (2012).

21. A. Ben-Salem, R. Cherif, M. Zghal, "Soliton-self compression in highly nonlinear chalcogenide photonic nanowires with ultralow pulse energy," **Optics Express** 19, 19955-19966 (2011).
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23. BenA. -Salem, R. Cherif, M. Zghal, "Low-energy single-optical-cycle soliton self-compression in air-silica nanowires," **Journal of Nanophotonics** 5 (1), art. no. 059506 (2011).
24. R. Cherif, M. Zghal, I. Nikolov, M. Danailov, "High energy femtosecond supercontinuum light generation in large mode area photonic crystal fiber," **Optics Communications**, vol. 283 (21), pp. 4378-4382 (2010).
25. R. Cherif, A. B. Salem, M. Zghal, P. Besnard, T. Chartier, L. Brilland and J. Troles "Highly nonlinear As<sub>2</sub>Se<sub>3</sub>-based chalcogenide photonic crystal fiber for midinfrared supercontinuum generation," *Optical Engineering*, vol. 49, pp. 095002-1: 095002-6 (2010). ***Selected for the October 2010 issue of Virtual Journal of Ultrafast Science which is published by the American Physical Society and the American Institute of Physics.***
26. L. Tartara, C. Codemard, J. N. Maran, R. Cherif, M. Zghal, "Full modal analysis of the Brillouin gain spectrum of an optical fiber," **Optics Communications**, vol. 282, pp. 2431-2436 (2009).
27. L. Tartara, V. Degiorgio, R. Cherif, and M. Zghal, "Setting a limit to the supercontinuum generated in a photonic crystal fibre," *J. of Telecommunications and Information Technol.*, vol. 1/2009, pp. 34-37, (2009).
28. R. Cherif, M. Zghal, L. Tartara, V. Degiorgio, "Supercontinuum generated by high order mode excitation in a photonic crystal fibre," **Optics Express**, vol. 16, pp. 2147-2152 (2008).
29. M. Zghal, R. Cherif, "Impact of small geometrical imperfections on chromatic dispersion and birefringence in photonic crystal fibers," **Optical Engineering**, vol. 46(12), pp. 128002 1-7 (2007). **I.F. 0.959**
30. M. Zghal, R. Cherif, F. Bahloul, "Improving triangular-lattice photonic-crystal-fiber couplers by introducing geometric nonuniformities," **Optical Engineering**, vol. 46(9), pp. 095004 1-7 (2007). **I.F. 0.959**

### Book chapters

1. A. Ben Salem, R. Cherif, and M. Zghal, "Nonlinear Fiber Optics: Application to Supercontinuum Generation," *Advances in Optical Science and Engineering*, Vol. 166, **Springer Proceedings in Physics**, 37-46 (2015).

2. J. M. Dudley, R. Cherif, S. Coen, and G. Genty, "Ultrafast Nonlinear Fibre Optics and Supercontinuum Generation," *Ultrafast Nonlinear Optics*, **Springer**, ISBN978-3-319-00017-6, Chapter 8 (2013).
3. R. Cherif, M. Zghal, A. Ben-Salem, "Modeling and Characterization of Nonlinear Optical Effects in Photonic Nanowires," *Computational Nanophotonics: Modeling and Applications*, Taylor & Francis Inc., ISBN 13: 9781466558762, Chapter 4 (2013).
4. R. Cherif, M. Zghal, L. Tartara, V. Degiorgio, "Influence of the cut-off wavelength on the supercontinuum generation in a highly non-linear photonic crystal fiber," *Extreme Photonics & Applications*, Springer, ISSN1874-6500, pp. 147-159 (2010).

#### **Publications in international conferences**

1. A. Ben Khalifa, R. Cherif, A. Ben Salem, "Multimode supercontinuum generation in As<sub>2</sub>S<sub>3</sub> chalcogenide photonic crystal fiber", *Frontiers in optics*, Washington DC, USA (2018).
2. A. Ben Khalifa, A. Ben Salem and R. Cherif, "Fiber optic refractive index sensor based on tapered thin core fiber", *Proc. SPIE 10382*, 103820D (2017).
3. A. Ben Khalifa, A. Ben Salem and R. Cherif, "Fiber-optic refractive index sensor based on multimode interference in a coreless fiber, Nanoscale Science and technology conference, 27-29 october, Hammamet, Tunisia (2017).
4. A. Ben Salem, A. Trichili, R. Cherif, and M. Zghal, "Rigorous study of supercontinuum generation by high order optical modes," *Proc. SPIE. 9958*, Photonic Fiber and Crystal Devices: Advances in Materials and Innovations in Device Applications X, 99580L, USA (2016) doi: 10.1117/12.2237173A.
5. A. Ben Salem, M. Diouf, R. Cherif, A. Trichili, A. Wague, and M. Zghal, "All Normal As<sub>2</sub>S<sub>5</sub>-Borosilicate Hybrid Photonic Crystal Fiber for Ultra Flat-Top Mid-Infrared Supercontinuum," in *Frontiers in Optics 2016*, OSA Technical Digest , Optical Society of America, paper JW4A.28, USA (2016),
6. A. Ben Khalifa, R. Cherif, A. Ben Salem, and M. Zghal, "Propagation in few modes fiber with strongly coupled groups of modes," *Proc. SPIE. 9886*, *Micro-Structured and Specialty Optical Fibres IV*, 98860D, Brussels (2016) doi: 10.1117/12.2227593
7. A. Ben Khalifa, A. Ben Salem, R. Cherif, and M. Zghal, "Mid-infrared supercontinuum generation in multimode hybrid step index chalcogenide fiber," *Proc. SPIE. 9958*, *Photonic Fiber and Crystal Devices: Advances in Materials and Innovations in Device Applications X*, 99580M, USA (2016) doi: 10.1117/12.2237841.
8. A. Baili, R. Cherif, A. Ben Salem, A. Kumar, R. K. Sinha, M. Zghal, "Slow light generated via Brillouin scattering in small core chalcogenide photonic crystal fiber", *Proceedings of SPIE Vol. 9586*, 95860P (2015).
9. M. Diouf, A. Ben Salem, R. Cherif, A. Wague, M. Zghal, "A novel As<sub>2</sub>S<sub>5</sub>-tellurite hybrid photonic crystal fiber for long mid-IR supercontinuum fiber lasers", *Proceedings of SPIE Vol. 9586*, 95860D (2015).

10. I. Abidi, R. Cherif, M. Zghal, "Enhanced stimulated Brillouin scattering in chalcogenide elliptical photonic crystal fibres", Proceedings of SPIE Vol. 9347, 934719 (2015).
11. T. S. Saini, A. Kumar, R. Cherif, R. K. Sinha, M. Zghal, "Design and analysis of rectangular core photonic crystal fiber for supercontinuum generation", Proceedings of SPIE Vol. 9586, 95860G (2015).
12. A. Ben Salem, R. Cherif, M. Zghal, "Hybrid Chalcogenide Nanowire for Mid-IR Single-Optical Cycle Pulse Generation," paper id. FW1D.3, Frontiers in optics 99<sup>th</sup> OSA annual meeting (2014), Oral presentation
13. A. Baili, R. Cherif, and M. Zghal, "Generation of broadband continuum in spiral photonic microwire by femtosecond pulses for infrared nonlinear applications," paper id. FM3B.6, Frontiers in optics 99<sup>th</sup> OSA annual meeting (2014), Oral presentation
14. Amira Baili, Rim Cherif, Amine Ben Salem, Than Singh Saini, Ajeet Kumar, Ravindra K. Sinha, Mourad Zghal, "Design of single-polarisation single-mode photonic nanowire," Proc. SPIE Optics and Photonics, San Diego, California, USA (2014). Oral presentation
15. A. Baili, R. Cherif, T. Singh Saini, A. Kumar, R. K. Sinha, M. Zghal, "2-10  $\mu\text{m}$  supercontinuum broadening using a highly nonlinear chalcogenide microfiber for mid-IR applications," Proc. SPIE Optics and Photonics, San Diego, California, USA (2014). **Invited talk**, Oral presentation, **SPIE Travel grant**
16. Than Singh Saini, Amira Baili, Vinita Dahiya, Ajeet Kumar, Rim Cherif, Mourad Zghal, Ravindra K. Sinha, "Design of equiangular spiral photonic crystal fiber for supercontinuum generation at 1550 nm," Accepted for publication in SPIE Optics and Photonics, San Diego, California, USA (2014). Oral presentation
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18. A. Trichili, A. Ben Salem, R. Cherif, M. Zghal, A. Forbes, "A new design of a directional coupler for high order mode multiplexing in few mode fiber," Proc. SPIE 9131, 91310X, Brussels (2014); doi: 10.1117/12.2051858, Oral presentation
19. A. Trichili, A. B. Salem, R. Cherif, and M. Zghal, "Mode coupling analysis in few mode fibers," Proc. ICO-23, Santiago de Compostela, Spain (2014). (Invited Talk)
20. A. Baili, T. S. Saini, V. Dahiya, R. Cherif, M. Zghal, A. Kumar and R.K. Sinha, "Mid-IR supercontinuum broadening in a highly nonlinear As<sub>2</sub>Se<sub>3</sub> nanofiber with low confinement loss," ICOL conference (International conference on optics and optoelectronics), 2014. Oral presentation, **Best student paper award by SPIE**
21. A. Ben-Salem, R. Cherif, and M. Zghal, "Broadband coherent mid-IR supercontinuum generation using highly nonlinear tapered photonic crystal fibers," Proc. SPIE 8785, 8th

- Iberoamerican Optics Meeting and 11th Latin American Meeting on Optics, Lasers, and Applications, 878550 (2013); doi:10.1117/12.2027491, Oral presentation
22. R. Cherif, A. Ben Salem, A. Gueddana, M. Zghal, D. Naidoo, A. Forbes, A. M. Heidt, and E. G. Rohwer, "Expansion of student activities in Africa: from south to north," 12<sup>th</sup> International conference on education and training in optics and photonics, pp. 47, Portugal (2013). Poster presentation
  23. R. Cherif, A. Ben-Salem, and M. Zghal, "A polarization maintaining evanescent field sensor for measuring liquid refractive index change", Proc. of SPIE, vol. 8775 877505-1 (2013). Oral presentation, **SPIE Travel grant**
  24. R. Cherif, Amira Baili, and M. Zghal, "Ultra-broadband, mid IR and coherent supercontinuum generated in aperiodic chalcogenide photonic crystal fibers," Proc. of SPIE, vol. 8772 87720C-1 (2013). Oral presentation, **SPIE Travel grant**
  25. T. Godin, B. Wetzal, T. Sylvestre, L. Larger, J.-M. Merolla, A. Ben Salem, R. Cherif, M. Zghal, A. Kudlinski, A. Mussot, G. Genty, F. Dias, and J.M. Dudley, "Real time spectra and wavelength correlation maps: new insights into octave-spanning supercontinuum generation and rogue waves", CLEO/Europe-IQEC Conference Digest, OSA Technical Digest (CD) (Optical Society of America, 2013), paper JSIII-2.2, (2013). Oral presentation.
  26. A. Ben-Salem, A. Dhib, R. Cherif, and M. Zghal, "Characterization of Mach-Zehnder interferometer-based photonic crystal fiber sensors," Proc. of SPIE, vol. 8561 856109-1 (2012). Oral presentation, **SPIE Travel grant**
  27. Amira Baili, R. Cherif, and M. Zghal, "New design of As<sub>2</sub>Se<sub>3</sub>-based chalcogenide photonic crystal fiber for ultra-broadband, coherent, mid-IR supercontinuum generation," Proc. of SPIE, vol. 8564 856457-1 (2012). Oral presentation, **SPIE Travel grant**
  28. A. Ben-Salem, R. Cherif, and M. Zghal, "Highly sensitive elliptical-nanowire-based sensor," Frontiers In Optics-OSA Annual Meeting, n° FW3A. 43, San Jose, California, USA (2012). Poster presentation, **OSA Travel grant**
  29. T. Cheng, R. Cherif, M. Liao, W. Gao, Z. Duan, M. Zghal, T. Suzuki and Y. Ohishi, "Enhancing stimulated Brillouin scattering in a three-core tellurite microstructured optical fiber," Frontiers In Optics-OSA Annual Meeting, n° FTh3C.5, San Jose, California, USA (2012). Oral presentation, **SPIE Travel grant**
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35. A. Ben-Salem, R. Cherif, M. Zghal, "Generation of few optical cycles in air-silica nanowires," Proc. of SPIE, vol. 8001 80011J 1-7 (2011). Oral presentation
36. A. Ben-Salem, R. Cherif, M. Zghal, "Study of soliton-self compression in photonic nanowires," Proc. of SPIE 8011 8011B (2011). Oral presentation
37. A. Ben-Salem, R. Cherif, M. Zghal, "Tapered As<sub>2</sub>S<sub>3</sub> chalcogenide photonic crystal fiber for broadband mid-infrared supercontinuum generation," Frontiers In Optics-OSA Annual Meeting, San Jose, California, USA (2011). Oral presentation, **OSA Travel grant**
38. A. Ben-Salem, R. Cherif, M. Zghal, and Johan P. Burger, "Insights into the polarization behaviour of a long highbirefringence photonic crystal fibre under low energy,ultrashort pulse excitation," IEEE Africon, Namibia (2011). Oral presentation
39. R. Cherif, M. Zghal, M. Danailov, "Génération de supercontinuum de 1.4 μ dans une fibre a cristaux photoniques à large aire effective," Journées Nationales de l'Optique Guidée JNOG'2010, pp. 41-43, France (2010). Poster presentation
40. R. Cherif, I. Nikolov, M. Zghal, M. Danailov, "Supercontinuum generation in a large mode area photonic crystal fiber," Proc. of SPIE, vol. 7501 75010K 1-6 (2009). Oral presentation
41. R. Cherif, M. Zghal, L. Tartara, "Experimental and numerical analysis of white light generation in an air-silica photonic crystal fibre," IEEE International Conference in Transparent Optical Networks (ICTON) MW, pp. FrP3 1-6, France (2009). Oral presentation
42. R. Cherif, M. Zghal, L. Tartara, V. Degiorgio, "Single-sided supercontinuum generation in a photonic crystal fiber by selective excitation of the third-order mode," Proc. of SPIE, vol. 6990 69900O 1-7 (2008). Oral presentation
43. R. Cherif, M. Zghal, L. Tartara, V. Degiorgio, "Génération de supercontinuum visible par excitation sélective des modes d'ordre supérieur," JNOG'2008, pp. 386-388, France (2008).
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