

# CURRICULUM VITAE

## **Amine BEN SALEM**

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## **I. EDUCATION AND DEGREES**

- September 2013**      **Doctor of Philosophy (PhD) in *Information and Communications Technology (ICT)*,**  
Ecole Supérieure des Communications de Tunis (Sup'Com),  
University of Carthage, Tunisia, with the highest distinction and  
congratulations of the jury.
- April 2010**            **Master of Science (MSc) in *Telecommunications*,**  
Sup'Com, University of Carthage, Tunisia, with Honors.
- June 2009**            **Engineering Diploma in *Telecommunications***  
Sup'Com, University of Carthage, Tunisia, with Honors.
- September 2006**    **Preparatory School Diploma in *Mathematics & Physics***  
IPEIT, Institut Préparatoire aux Etudes d'Ingénieurs de Tunis,  
University of Tunis, Tunisia.

## **II. PROFESSIONAL EXPERIENCE**

- Since 2014**            **Assistant Professor in *Telecommunications*** at Sup'Com.
- 2013-2014**            **Permanent Assistant lecturer in *Telecommunications***  
at Institut supérieur des sciences appliquées et de technologie de  
Mateur (ISSATM), University of Carthage, Tunisia.
- 2010-2013**            **Part-time lecturer in *Telecommunications*** at Sup'Com,  
  
**“*Futur & Ruptures*” grant recipient**  
through the PhD thesis program co-funded by Fondation Télécom  
and Institut Mines-Télécom, France.

### III. RESEARCH EXPERIENCE

2010-2013, PhD thesis: “*Characterization of photonic nanowires for pulse compression and sensing applications*”.

Advisors: Prof. Mourad Zghal (Sup’Com) & Dr. Rim Cherif (Faculté des Sciences de Tunis, FST)

2009-2010, MSc thesis: “*Characterization of nonlinear optical effects in chalcogenide photonic crystal fibers*”.

Advisors: Prof. Mourad Zghal (Sup’Com) & Dr. Rim Cherif (FST)

### MAIN SCIENTIFIC RESEARCH TOPICS

Photonic nanowires, photonic crystal fibers, nonlinear optics, pulse compression, supercontinuum generation, optical sensing.

### AWARDS AND DISTINCTIONS

April 2014: « Prix de Thèse du programme *Futur et Ruptures* de l’Institut Mines-Télécom, France ».

### SCIENTIFIC TRAININGS AND ATTENDED SCHOOLS

- Participation in the “Winter College on Optics: Fundamentals of Photonics - Theory, Devices and Applications,” Trieste - Italy, 10 - 21 February 2014.
- Participation in the “6<sup>th</sup> African Laser Centre Student Workshop,” Stellenbosch, South Africa, 21 - 23 November 2013. (*Top Merit PhD Prize Presentation*)
- Participation in “the First African Summer School on Optics and Applications to Sustainable Development (ASOSD),” Carthage Hannibal, Tunis, 31 August - 08 September 2013. (*Best Oral Presentation Award*)
- Training research: “*Spatial mode control in fibers for high bit-rate optical communications*,” Laser Research Institute, University of Stellenbosch and CSIR National Laser Centre, 19 April - 24 May 2013. (*Project funded by the African Laser Centre “ALC”*)
- Training research: “*Real-time measurement of spectral noise in supercontinuum generation*,” Département d’optique P.M. Duffieux, CNRS Institut Femto-ST, Besançon, France, October - December 2012. (*Scholarship awarded by The Ministry of Higher Education and Scientific Research*)
- Participation in the Fourth Edition of the Advanced School of Physics in the Maghreb “EPAM2012: Lasers, Photonique & Applications,” 16 - 25 March 2012, La Marsa, Tunis, Tunisia.
- Training research: “Numerical and experimental studies of supercontinuum generation in photonic crystal fibers,” NMISA ‘National Metrology Institute of South Africa’, Pretoria, South Africa, May - July 2010. (Project funded by the African Laser Centre “ALC”)

- Seminar: “Lasers in Chemistry”, University of Pretoria, South Africa, 3-5 May 2010.
- Training research: “*Study of the stimulated Brillouin scattering effect in photonic crystal fibers,*” FOTON-ENSSAT laboratory, Lannion, France & NMISA ‘National Metrology Institute of South Africa’, Pretoria, October 2009 - April 2010. (*Project under the DGRST/CNRS cooperation*)
- Training research: “Optical characterization of chalcogenide photonic crystal fibers,” FOTON-ENSSAT laboratory, Lannion, France, March - September 2009. (Project under the DGRST/CNRS cooperation)

#### IV. SCIENTIFIC PUBLICATIONS

##### Journal articles

1. A. Ben Salem, R. Cherif, and M. Zghal, “Performance Improvement in Mach-Zehnder Interferometer-based Refractive Index Sensor using Elliptical Photonic Nanowires,” **J. Mod. Optics** 61, 263-269 (2014).
2. T. Godin, B. Wetzal, T. Sylvestre, L. Larger, A. Kudlinski, A. Mussot, A. Ben Salem, M. Zghal, G. Genty, F. Dias, and J. M. Dudley, “Real time noise and wavelength correlations in octave-spanning supercontinuum generation,” **Opt. Express** 21, 18452-18460 (2013).
3. A. Ben Salem, R. Cherif, and M. Zghal, “Highly nonlinear tapered photonic crystal fibers for broadband midinfrared supercontinuum generation in the few-optical-cycle regime,” **Opt. Eng.** 51, 105008 (2012).
4. A. Ben Salem, R. Cherif, and M. Zghal, “Rigorous optical modeling of elliptical photonic nanowires,” **IEEE/OSA J. Lightw. Technol.** 30, 2176-2180 (2012).
5. J.P. Burger, A. Ben Salem, R. Cherif, and M. Zghal, “Methodology for *in situ* characterization of a highly birefringent photonic crystal fibre for supercontinuum generation,” **SAIEE Africa Research Journal.** 13, 35-40 (2012).
6. A. Ben Salem, R. Cherif, and M. Zghal, “Low-energy single-optical-cycle soliton self-compression in air-silica nanowires,” **Journal of Nanophoton.** 5, 059506 (2011).
7. A. Ben Salem, R. Cherif, and M. Zghal, “Soliton-self compression in highly nonlinear chalcogenide photonic nanowires with ultralow pulse energy,” **Opt. Express** 19, 19955-19966 (2011).
8. R. Cherif, A. Ben 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,” **Opt. Eng.** 49, 095002 (2010).

##### Book chapter

1. 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).

## International conference papers

1. A. Ben Salem, R. Cherif, and M. Zghal, "Hybrid Chalcogenide Nanowire for Mid-IR Single-Optical Cycle Pulse Generation," in *Frontiers in Optics Conference*, **OSA Technical Digest** (Optical Society of America, 2014), paper FW1D.3.
2. A. Trichili, A. Ben Salem, R. Cherif, M. Zghal, and A. Forbes, "A new design of a directional coupler for high order mode multiplexing in few mode fiber," Proc. **SPIE** 9131, 91310X (2014).
3. A. Baili, R. Cherif, A. Ben Salem, T. S. Saini, A. Kumar, R. K. Sinha, and M. Zghal, "Design of single-polarisation single-mode photonic nanowire," Proc. **SPIE** 9170, 917014 (2014).
4. A. Ben Salem, R. Cherif, and M. Zghal, "Broadband coherent mid-IR supercontinuum generation using highly nonlinear tapered photonic crystal fibers," Proc. **SPIE** 8785, 87855O (2013).
5. 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," in **ETOP 2013 Proceedings**, (Optical Society of America, 2013), paper EWP36.
6. R. Cherif, A. Ben Salem, and M. Zghal, "A Polarization Maintaining Evanescent Field Sensor for Measuring Liquid Refractive Index Change", Proc. **SPIE** 8775, 877505 (2013).
7. T. Godin, B. Wetzell, 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*, **OSA Technical Digest** (Optical Society of America, 2013), paper JSIII-2.2.
8. A. Ben Salem, A. Dhib, R. Cherif, and M. Zghal, "Characterization of Mach-Zehnder interferometer-based photonic crystal fiber sensors", Proc. **SPIE** 8561, 856109 (2012).
9. A. Ben Salem, R. Cherif, and M. Zghal, "Highly Sensitive Elliptical-Nanowire-Based Sensor," in *Frontiers in Optics Conference*, **OSA Technical Digest** (Optical Society of America, 2012), paper FW3A.43.
10. A. Ben Salem, R. Cherif, and M. Zghal, "Sub-two-cycle soliton self-compression in a tapered tellurite photonic crystal fiber," Proc. **SPIE** 8434, 84340B (2012). **SPIE Travel Grant**
11. A. Ben Salem, R. Cherif, and M. Zghal, "Tapered As<sub>2</sub>S<sub>3</sub> chalcogenide photonic crystal fiber for broadband mid-infrared supercontinuum generation," in *Frontiers in Optics Conference*, **OSA Technical Digest** (Optical Society of America, 2011), paper FMG6. **OSA Travel Grant**
12. A. Ben Salem, R. Cherif, and M. Zghal, "Generation of few optical cycles in air-silica nanowires," Proc. **SPIE** 8001, 80011J (2011).
13. A. Ben Salem, R. Cherif, and M. Zghal, "Study of soliton-self compression in photonic nanowires," Proc. **SPIE** 8011, 80119N (2011).
14. A. Ben Salem, R. Cherif, M. Zghal and J.P. Burger, "Insights into the polarisation behaviour of a long birefringent photonic crystal fibre under low energy ultrashort pulse excitation," Proc. **IEEE Africon**, Livingstone, Zambia, (2011).

15. A. Ben Salem, R. Cherif, and M. Zghal, "Raman response of a highly nonlinear As<sub>2</sub>Se<sub>3</sub>-based chalcogenide photonic crystal fiber," Proc. **PIERS**, 1256-1260, Marrakesh, Morocco (2011).
16. A. Ben Salem, R. Cherif, M. Zghal, and J.P. Burger, "Highly Birefringent Photonic Crystal Fiber for Coherent Infrared Supercontinuum Generation," Proc. **PIERS**, 1247-1251, Marrakesh, Morocco (2011).
17. R. Cherif, A. Ben Salem, and M. Zghal, "Full modal analysis of the stimulated Brillouin scattering in As<sub>2</sub>Se<sub>3</sub> chalcogenide photonic crystal fiber," Proc. **SPIE** 8073, 80732R (2011).

## V. ACADEMIC EXPERIENCE

### Engineer level

- Lecture: *Optical communication systems and components*, Sup'Com, 21 h (2011/12, 2012/13, 2013/14)
- Practice: *Optical network design and planning*, Sup'Com, 18 h (2010/11, 2011/12, 2012/13, 2013/14)
- Practice: *Experimental characterization of optical links*, Sup'Com, 15 h (2010/11, 2011/12, 2012/13, 2013/14)
- Practice: *Integration of optical communication systems*, Sup'Com, 21 h (2010/11, 2011/12, 2012/13, 2013/14)
- Practice: *Digital circuits*, Sup'Com, 21 h (2010/11, 2011/12)

### Bachelor level

- Lecture/Practice: *Wired networks*, ISSATM, 21h (2013/14)
- Lecture/Practice: *Wireless networks*, ISSATM, 21h (2013/14)

## VI. LANGUAGES SKILLS

Arabic, French, and English: Fluent in speaking, writing and reading.