Eli Slenders

Curriculum Vitae

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Profile

Eli Slenders has a PhD in physics from Hasselt University (Belgium) and is currently employed as a postdoctoral researcher at the Italian Institute of Technology in Genoa, Italy. His areas of expertise include optics, biophysics and computational physics. Currently, Eli's work focuses on the study of molecular dynamics by using fluorescence correlation spectroscopy and other related techniques.

Employment

2019-2021 **Postdoctoral researcher (current position)**, Italian Institute of Technology, Genoa, Italy.
Fluorescence correlation spectroscopy with SPAD array detection, under supervision of Dr. G. Vicidomini (since January 1st)

2018 **Researcher**, Hasselt University, Belgium.
Advanced coherent and incoherent optical microscopy, under supervision of Prof. Dr. M. Ameloot (March 1st – December 31st)

2017 **PhD student internship**, Italian Institute of Technology, Genoa, Italy.
Ten-week internship (June 5th – August 11th) on Resolution Enhancement in Two–Photon Fluorescence Microscopy by using Image Scanning Technology with Pixel Reassignment, under supervision of Dr. G. Vicidomini

2014 – 2018 **PhD student**, Hasselt University, Belgium.
Thesis subject: Resolution in Coherent and Incoherent Optical Imaging with Two–Photon Excitation Microscopy, under supervision of Prof. Dr. M. Ameloot (March 1st, 2014 – February 28th, 2018)

2013 – 2014 **Researcher**, KU Leuven, Belgium.
Thermal characterization of phase transitions in lipids, DNA and proteins, under supervision of Prof. Dr. C. Glorieux (October 1st, 2013 – February 28th, 2014)

Education

2018 **Machine Learning MOOC**, Stanford University (via Coursera), USA.

2017 **Certified teacher**, CVO LimLO, Diepenbeek, Belgium.

2013 **Master of Science, Soft Matter Physics, magna cum laude**, KU Leuven, Belgium.
Thesis subject: Thermal characterization of nanofluids.

2012 **Summer School Modern Computational Science**, Carl Von Ossietzky Universität, Oldenburg, Germany, August 2012.

2011 **Bachelor of Science, Physics, cum laude**, Hasselt University, Belgium.
Thesis subject: Fabrication of a surface acoustic wave device using photolithography.

Bursaries and awards

2020 **FameLab Italy, region Liguria: third place**.
Science communication contest organized by Psiquadro.
Video at `https://www.youtube.com/watch?v=mDavPS6tzE8`.

2019 **Laureate of the RBSM PhD thesis award in the category *Instrumentation and Methods***.
Organized by the Royal Belgian Society for Microscopy (RBSM). Thesis based on 3 first author publications and 1 shared first author manuscript, see *Scientific output*. Prize: presenting thesis work at the annual RBSM meeting, September 9th, Louvain-la-Neuve, and a cash prize of 1000 EUR.

2018 **Laureate of the FWO Science Communication contest**.
Organized by Fonds voor Wetenschappelijk Onderzoek (FWO).
Video at `https://www.youtube.com/watch?v=KPYkyq9sc-I`. Prize: travel grant to the EuroScience Open Forum Conference in Toulouse, France, from July 9th 2018 to July 13th, 2018.

2017 **Travel grant from FWO (Fonds voor Wetenschappelijk Onderzoek) for a long research stay abroad**.
Internship at the Italian Institute of Technology in Genova, Italy, from June 3rd, 2017 to August 13th, 2017.

2012 **Travel Grant provided by the Deutscher Akademischer Austauschdienst (DAAD) to attend the 4th International Summer School Modern Computational Science - Optimization**.
University of Oldenburg, Germany, from August 19th, 2012 to August 31st, 2012.

Scientific output

2021 **Slenders E.**, Castello M., Buttafava M., Villa F., Tosi A., Lanzanò L., Koho S., Vicidomini G. *Confocal-based Fluorescence Fluctuation Spectroscopy with a SPAD Array Detector* , Light, science & applications, 2021.

2020 Koho S.*, **Slenders E.***, Tortarolo G., Castello M., Buttafava M., Villa F., Tcarenkova E., Ameloot M., Bianchini P., Sheppard C.J.R., Diaspro A., Tosi A., Vicidomini G. *Two-photon image-scanning microscopy with SPAD array and blind image reconstruction*, Biomedical Optics Express, **11 (6)**, 2020.

* shared first author

Witters K., Plusquin M., **Slenders E.** Aslam I., Ameloot M., Roeffaers M. B. J., Vangronsveld J., Nawrot T. S., Bové, H. *Monitoring indoor exposure to combustion-derived particles using plants*, Environmental Pollution, **266 (1)**, 2020.

Sheppard C. J. R., Castello M., Tortarolo G., **Slenders E.**, Deguchi T., Koho S., Vicidomini G., Diaspro A. *Image scanning microscopy with multiphoton excitation or Bessel beam illumination*, Journal of the Optical Society of America A, **37 (10)**, 2020.

2019 Bové, H., Bongaerts E., **Slenders E.**, Bijnens E. M., Saenen N. D., Gyselaers W., Van Eyken P., Plusquin M., Roeffaers M. B. J., Ameloot M., Nawrot T. S. *Ambient black carbon particles reach the fetal side of human placenta* , Nature Communications, **10 (3866)**, 2019.

2018 **Slenders E.** *Resolution in coherent and incoherent optical imaging with two-photon excitation microscopy*, PhD thesis, Hasselt University, 2018.

Bové, H., Devoght, J., Rasking, L., Peters, M., **Slenders E.**, Roeffaers, M., Jorge-Penas, A., Van Oosterwyck, H., Ameloot, M. *Combustion-derived particles inhibit in vitro human lung fibroblast-mediated matrix remodeling*, Journal of Nanobiotechnology, **16**, 2018.

Slenders E., Bové H., Urbain M., Mugnier Y., Sonay A. Y., Pantazis P., Bonacina L., Vanden Berghe P., vandeVen M., Ameloot M. *Image correlation spectroscopy with second harmonic generating nanoparticles in suspension and in cells*, The Journal of Physical Chemistry Letters, **9**, 2018.

Collins J. T., Zheng X., Braz N. V. S., **Slenders E.**, Zu S., Vandenbosch G. A. E., Moshchalkov V. V., Fang Z., Ameloot M., Warburton P. A., Valev V. K. *Enantiomorphing chiral plasmonic nanostructures: a counterintuitive sign reversal of the nonlinear circular dichroism*, Advanced Optical Materials, **2018**, 2018.

Slenders E., Seneca S., Pramanik S. K., Smisdom N., Adriaensens P., vandeVen M., Ethirajan A., Ameloot M. *Dynamics of the phospholipid shell of microbubbles: a fluorescence photoselection and spectral phasor approach*, Chemical Communications, **54 (38)**, 2018.

2017 Coninx L., Thoonen A., **Slenders E.**, Morin E., Arnauts N., De Beeck M. O., Kohler A., Ruytinx J., Colpaert J. V., Seneca S., Pramanik S. K., Smisdom N., Adriaensens P., vandeVen M., Ethirajan A., Ameloot M. *The SIZRT1 gene encodes a plasma membrane-located ZIP (Zrt-, Irt-like protein) transporter in the ectomycorrhizal fungus suillus luteus*, Frontiers in Microbiology, **8**, 2017.

2016 Donders R., Sanen K., Paesen R., **Slenders E.**, Gyselaers W., Stinissen P., Ameloot M., Hellings N. *Label-free imaging of umbilical cord tissue morphology and explant-derived cells*, Stem Cells International, **2016**, 2016.

Bové H., Steuwe C., Fron E., **Slenders E.**, D'Haen J., Fujita Y., Uji-i H., vandeVen M., Roeffaers M., Ameloot M. *Biocompatible label-free detection of carbon black particles by femtosecond pulsed laser microscopy*, Nano Letters, **16 (5)**, 2016.

2015 **Slenders E.**, vandeVen M., Hooyberghs J., Ameloot M. *Coherent intensity fluctuation model for autocorrelation imaging spectroscopy with higher harmonic generating point scatterers - a comprehensive theoretical study*, Physical Chemistry Chemical Physics, **17**, 2015.

Losada-Perez P., Mertens N., de Medio-Vasconcelos B., **Slenders E.**, Leys J., Peeters M., van Grinsven B., Gruber J., Glorieux C., Pfeiffer H., Wagner P., Thoen J. *Phase transitions of binary lipid mixtures: a combined study by adiabatic scanning calorimetry and quartz crystal microbalance with dissipation monitoring*, Advances in Condensed Matter Physics, **2015**, 2015.

Kouyate M., Flores-Cuautle J. J. A., **Slenders E.**, Sermeus J., Verstraeten B., Ramirez B. M. L. G., Martinez E. S. M., Kubicar L., Vretenar V., Hudec J., Glorieux C. *Study of thermophysical properties of silver nanofluids by ISS-HD, hot ball and IPPE techniques*, International Journal of Thermophysics, **36 (10-11)**, 2015.

2014 Leys J., Losada-Perez P., **Slenders E.**, Glorieux C., Thoen J. *Investigation of the melting behavior of the reference materials biphenyl and phenyl salicylate by a new type adiabatic scanning calorimeter*, Thermochimica Acta, **582**, 2014.

Organization of international conferences

μFiBR 2014 Co-organizer of the 2014 edition of the MicroFluorimetry in Biomedical Research (μFiBR) symposium on October 3rd at Hasselt University (Belgium).

Oral presentations

2019 Resolution in coherent and incoherent optical imaging with two-photon excitation microscopy, RBSM annual meeting, Louvain-la-Neuve, Belgium, September 9th, 2019.

2018 Image scanning microscopy - juggling with pixels for lateral resolution enhancement, NanoMacro Microscopy Workshop, Diepenbeek, Belgium, September 6th, 2018.

2017 Characterization of the phospholipid shell of microbubbles using fluorescence microscopy, Belgian Physical Society Conference, Antwerp, Belgium, September 10th, 2017.

2015 Coherent intensity fluctuation model for autocorrelation imaging spectroscopy with higher harmonic generating nanoparticles, Annual Scientific Meeting IAP, Hasselt, Belgium, September 11th, 2015.

Teaching experience

As part of the minimal requirements to obtain a PhD degree imposed by the doctoral school of Sciences and Technology, I was involved as a teaching assistant in several courses between 2014 and 2018:

- Biophysics - bachelor program Biomedical Sciences (2014, 2015, 2016, 2017)
- Focus on Life - bachelor program Biomedical Sciences (2014, 2015)
- Tutorial confocal microscopy - bachelor program Biomedical Sciences (2014, 2015, 2016, 2017)
- Cell biology - bachelor program Biomedical Sciences (2016, 2017, 2018)
- Lab sessions Electromagnetism - bachelor program Physics (2015, 2016, 2017)

Since 2017, I hold an official teachers degree from CVO LimLO, Diepenbeek, Belgium (60 ECTS), which allows me to teach scientific courses to students in high schools (age 12-18).

Supervision experience

• Sebastian Acuña - *Building a confocal laser scanning microscope with a SPAD array detector*, internship project, 2019.

• Tom Goyens - *Using structured illumination in laser scanning microscopy for enhanced lateral resolution*, bachelor thesis Physics, 2016.

• Richeek Dey - *Analysis of SHG correlation spectroscopy and Laurdan fluorescence microscopy*, master program Biomedical Sciences, 2015.

• Sigurd Mertens - *Using structured illumination in second harmonic generating microscopy for enhanced lateral resolution*, bachelor thesis Physics, 2015.

• Ardit Zaçlli and Richeek Dey - *Characterization of second harmonic generation signal and the cytotoxicity of $BaTiO_3$ nanoparticles*, master program Biomedical Sciences, 2014.

IT knowledge

Operating systems	Windows, (basic knowledge of) Ubuntu, Linux
Office	Microsoft Office (Word, Excel, PowerPoint), LibreOffice (Writer, Calc, Draw), LaTeX
Programming	Python, Matlab/Octave, LabVIEW, PHP, C, Java, mySQL, Arduino IDE
Mathematics	Maple, Origin
Web	HTML, CSS
Version control	Git, Subversion
Design	Adobe Photoshop/Gimp, Adobe Premiere Pro, Adobe Illustrator, Inkscape

Personal information

First name	Eli
Last name	Slenders
Date of birth	November 7th, 1990
Nationality	Belgian
Languages	Dutch (mother tongue), English (professional working proficiency), Italian (basic proficiency), French (basic proficiency)

Interests

Hiking, running, roller skating

Guitar

Science communication, tutoring mathematics and physics

Language learning

Reading