

## CURRICULUM VITAE

**Atef Shalabney**

**עאטף שלאבנה**

Atef Shalabney, PhD

Department of physics and optical engineering,  
Braude College, Karmiel, Israel.

Email: [shalabney@braude.ac.il](mailto:shalabney@braude.ac.il)

- **Education:**

- B.Sc. - 1993-1997      Electrical Engineering, Technion, Haifa, Israel.  
Specialization: *Signal and Image processing, Communication systems, and Power Electronics.*
- M.Sc. - 2008-2009      Electro-optics engineering, Ben-Gurion University, Israel –  
*Graduated with distinction.*
- Thesis title:            *Optimization of plasmonic and nanophotonic structures for biosensing.*
- Ph.D - 2009-2013      Electro-optics Engineering, Ben Gurion University, Israel.
- Thesis title:            *Optimization of plasmonic and nanophotonic structures for biosensing.*

- **Employment history**

- 10/2015-Present      Senior lecturer, Physics and optical engineering department, ORT Braude College, Karmiel, Israel.
- 3/2013-8/2015        Postdoctoral research fellow within the nanostructures group at ISIS (Institut de Science et d'Ingénierie Supramoléculaires), University of Strasbourg, France.
- 2009-2013            Teaching assistant and lab instructor within the Electro-optics Engineering Department, Ben-Gurion University, Beer Sheva, Israel.
- 1999-2000            Teaching assistant, Electrical engineering department, Ben-Gurion University, Beer Shiva, Israel.
- 1997-2009            Tutor for physics, electronics, and optics, Ort Israel, Israel.

- **Professional activities**

- (a) **Reviewer of the journals:** Biosensors and Bioelectronics, Biomedical optics, Optics Express, Optics Letters, Applied Optics, Optics Communications, Nanoscale Research Letters, Journal of Nanophotonics, Sensors Journal, Journal of Electromagnetic Waves and Applications (JEMWA), Progress in Electromagnetic Research (PIER).

Atef Shalabney

(b) Since 2009 - Member of the Optical Society of America (OSA)

(c) Since 2009 - Member of the SPIE and board member of the SPIE BGU students' chapter

(d) Since 20015 - Member of the Royal Society of Chemistry

- **Academic teaching experience**

*Physics and optical engineering Department, Ort Braude College*

Optical sources and Lasers

Radiometry and optical detection

Optical imaging

Introduction to optical engineering

Physical Optics

*Electro-optics Engineering Department, Ben-Gurion University*

Advanced Laboratory of Optics and Photonics (graduate)

Propagation of waves and light beams (graduate)

Electronic circuits (undergraduate)

- **Research interests**

1. Plasmonics and Surface Plasmon Polaritons
2. Optical Bio sensing and molecular detection
3. Surface enhanced IR spectroscopy (SEIRA)
4. Surface enhanced Raman Scattering (SERS)
5. Light-matter strong coupling and consequences on chemistry and biology

- **Awards and fellowships**

2009 - Negev Fellowship for PhD studies for 4 years – given for excellent PhD students.

2013 - CNRS (French National Centre for Scientific Research) fellowship for postdoctoral position within the French-Israeli collaboration in Nanosciences and Nanotechnology. Given for an outstanding PhD holder in Nanoscience and Nanotechnology.

2014 - Planning and budgeting committee of the Israeli council for higher education (VATAT) fellowship for Arab excellent PhD graduates in sciences.

2015 - Planning and budgeting committee of the Israeli council for higher education (VATAT) fellowship for Arab excellent PhD graduates in sciences.

2015- Maof fellowship awarded by the council for higher education in Israel for excellent young Arab researcher to be absorbed in the Israeli academy.

- **Scientific publications**

**(a) Papers in Refereed Journals:**

1. Lahav, A., **Shalabney, A.**, Abdulhalim, I. **2009**. Surface plasmon sensor with enhanced sensitivity using top nano dielectric layer. *J. Nanophoton.* 3: 031501. (30 citations; IF 1.448; 38/82 in optics; Q2)
2. **Shalabney, A.**, Lakhtakia, A., Abdulhalim, I., Lahav, A., Patzig, C., Hazek, I., Karabchevsky, A., Rauschenbach, B., Zhang, F., Xu, J. **2009**. Surface plasmon resonance from metallic columnar thin films. *Photonics and Nanostructures – Fundamentals and Applications* 7:176–185. (24 citations; IF 1.35; 37/212 in atomic and molecular physics; Q1)
3. **Shalabney, A.**, and Abdulhalim, I. **2010**. Electromagnetic fields distribution in multilayer thin film structures and the origin of sensitivity enhancement in surface Plasmon resonance sensors. *Sensors and Actuators A: Physical* 159: 24-32. (90 citations; IF 2.143; 23/123 in surfaces, coatings and films; Q1)  
(Among the most cited papers in *Sensors and Actuators A* since 2009).
4. Krasnykov, O., karabchevsky, A., **Shalabney, A.**, Auslender, M., and Abdulhalim, I. **2011**. Sensor with increased sensitivity based on enhanced optical transmission in the infrared. *Optics communications*, 284: 1435-1438. (12 citations; IF 1.542; 39/212 in atomic and molecular physics, and optics; Q2)
5. **Shalabney, A.**, and Abdulhalim, I. **2011**. Sensitivity-enhancement methods for surface Plasmon sensors. *Laser & Photonics reviews*, 5: 561-606. (108 citations; IF 9.313; 3/93 in optics; Q1)
6. **Shalabney, A.**, Khare, C., Rauschenbach, B., and Abdulhalim I. **2011**. Sensitivity of surface plasmon resonance sensors based on metallic columnar thin films in the spectral and angular interrogations. *Sensors and Actuators B: Chemical*, 159:201-212. (24 citations; IF 4.1; 28/272 in electronic, optical and magnetic materials; Q1)
7. **Shalabney, A.**, and Abdulhalim, I. **2012**. Figure of merit enhancement of surface plasmon resonance sensors in the spectral interrogation. *Optics Letters*, 37: 1175-1177. (48 citations; IF 3.18; 7/212 in atomic and molecular physics, and optics; Q1)
8. Szunerits, S., **Shalabney, A.**, Boukherroub, R. and, Abdulhalim, I. **2012**. Dielectric coated plasmonic interfaces: their interest for sensitive sensing of analyte-ligand interactions. *Reviews in Analytical Chemistry*, 31:15-28. (10 citations; IF 1; SCImago journal rank (SRJ): 0.274 )

9. **Shalabney, A.**, Chinmay, K., Bauer, J., Rauschenbach, B., and Abdulhalim I. **2012**. Detailed study of Surface enhanced Raman scattering from metallic nano sculptured thin films and their potential for biosensing. *J. Nanophoton.* 6 (1), 061605-1-061605-20. (13 citations; IF 1.448; 38/82 in optics; Q2)
10. **Shalabney, A.**, and Abdulhalim I. **2012**. Prism dispersion effects in near-guided-wave surface plasmon resonance sensors. *Ann. Phys.* **524:680–686**. (6 citations; IF 1.48; 358/1256 in physics and astronomy; Q2)
11. Srivastava, S., **Shalabney, A.**, Khalaila, I., Gruner. C., Rauschenbach, B., Abdulhalim, I. **2014**. SERS Biosensor using metallic Nano-Sculptured thin films for the detection of endocrine disrupting compound biomarker Vitellogenin. *Small*, 10:3579-3587. (13 citations; IF 7.823; 40/1827 in medicine; Q1)
12. Hartè, E., Maalouli, N., **Shalabney, A.**, Texier, E., Berthelot K., Lecomte, S., Alves, I. D. **2014**. Probing the kinetics of lipid membrane formation and the interaction of a nontoxic amloid with plasmon waveguide resonance. *Chem. Commun.*, 50:4168-4171. (7 citations; IF 6.718; 29/860 in chemistry; Q1)
13. **Shalabney, A.**, George, J., Hutchison, J. A., Pupillo, G., Genet C., and Ebbesen, T. W. **2015**. Coherent coupling of molecular resonators with a micro-cavity mode. *Nature Communications*, 6:5981, doi: 10.1038/ncomms6981 (28 citations; IF 10.742; 3/55 in multidisciplinary sciences; Q1)
14. George, J., **Shalabney, A.**, Hutchison, J. A., Genet, C., Ebbesen, T. W. **2015**. Liquid-Phase vibrational strong coupling. *J. Phys. Chem. Lett.* 6:1027-1031. (9 citations; IF 6.687; 16/529 in materials sciences; Q1)
15. **Shalabney, A.**, George, J., Hiura, H., Hutchison, J. A., Genet, C., Hellwig, P., Ebbesen, T. W. **2015**. Enhanced Raman Scattering from Vibro-Polariton Hybrid States. *Angew. Chem. Int. Ed.*, 54:7971-7975. (10 citations; IF 11.3; 8/417 in materials sciences; Q1)
16. Wang, S., Li, S-L., Chervy, T., **Shalabney, A.**, Azzini, S., Orgiu, E., Hurchison, J. A., Genet, C., Samori, P., Ebbesen, T. W., **2016**. Coherent coupling of WS2 monolayers with metallic photonic nanostructures at room temperature. *Nano Lett.*, DOI: 10.1021/acs.nanolett.6b01475. ( IF 13.779; 6/415 in chemistry (miscellaneous); Q1)

**(b) Conference proceedings papers**

1. **Shalabney, A.,** and Abdulhalim, I. **2012.** Improving the performances of surface Plasmon resonance sensor in the infrared region by adding thin dielectric over-layer. P. 1-5, IEEE 27<sup>th</sup> convention, Israel.
2. **Shalabney, A.,** Khare, C., Rauschenbach, B., and Abdulhalim, I. **2012.** Metallic Nanosculptured Thin Films for Biosensing Applications using Surface Plasmon Resonance and Enhanced Spectroscopies. P. 1-5, IEEE 27<sup>th</sup> convention, Israel.
3. Srivastava, S., **Shalabney, A.,** Khalaila, I., Gruner, C., Rauschenbach, B., and Abdulhalim, I. **2014.** Highly sensitive SERS based nano-sculptured thin film biosensor for the detection of vitellogenin: an endocrine disruption biomarker. Nanophotonic and Plasmonic Biosensors II (SeM3C), Barcelona, Spain.
4. Karabchevsky, A., **Shalabney, A.** **2016.** Strong interaction of molecular vibrational overtones with near-guided surface plasmon polariton. SPIE Photonics Europe, Brussels, Belgium.

**(c) Chapters in books**

1. **Shalabney, A.** **2015.** Propagating Surface Plasmon Polaritons. Introduction to Plasmonics: Advances and Applications. Eds. Sabine Szunerits and Rabah Boukherroub, CRC Press, 2015, ISBN 9814613134, 9789814613132.

**(d) Presentations in conferences:**

1. **Shalabney, A.,** and Abdulhalim, I. **2009.** Optimization of Multilayer Surface Plasmon Resonance Biosensors. 2<sup>nd</sup> OASIS conference, Tel Aviv, Israel.
2. **Shalabney, A.,** and Abdulhalim, I. **2009.** Optimization of Multilayered and Porous structures for Plasmon Resonance Biosensing. Students' conference, Bar Ilan University, Tel Aviv, Israel, August.
3. **Shalabney, A.,** and Abdulhalim, I. **2009.** Optimization of Multilayer Surface Plasmon Resonance Biosensors. 2<sup>nd</sup> Mediterranean conference on Nano-Photonics, Medinano-2, Athens, Greece.
4. **Shalabney, A.,** and Abdulhalim, I. **2009.** Optimization of Sculptured Thin Films for Optical Signals Enhancement for Biosensing. 2<sup>nd</sup> Mediterranean conference on Nano-Photonics, Medinano-2, Athens, Greece, *Oral Presentation.*
5. **Shalabney, A.,** Khare, C., Rauschenbach, B., and Abdulhalim, I. **2010.** Surface Enhanced Raman Scattering from Metallic Sculptured Thin Films – A Comparative Study. 3<sup>rd</sup>

mediterranean conference on Nano-Photonics, MediNano 3, Belgrade, Serbia, *Oral Presentation*.

6. **Shalabney, A.,** Khare, C., Rauschenbach, B., and Abdulhalim I. **2010.** Nano-Sculptured Thin Films For Surface Enhanced Raman Scattering Applications. 2<sup>nd</sup> international Nanotechnology conference and exhibition, NanoIsrael 2, Tel-Aviv, Israel.
7. **Shalabney, A.,** Khare, C., Rauschenbach, B., and Abdulhalim, I. **2011.** Sensitivity of Surface Plasmon Resonance Sensors Based on Metallic Columnar Thin Films. 3<sup>rd</sup> OASIS conference, Tel Aviv, Israel, *Oral Presentation*.
8. **Shalabney, A.,** Khare, C., Rauschenbach, B., and Abdulhalim, I. **2011.** Sensitivity of Surface Plasmon Resonance Sensors Based on Metallic Columnar Thin Films in the Spectral and Angular Interrogations. Optics and Photonics day - BGU, Ben Gurion University, Beer Shiva, Israel.
9. **Shalabney, A.,** and Abdulhalim, I. **2011.** The Magic of Adding a Top Nano-Dimensional Dielectric Layer on the Sensitivity of Surface Plasmon Resonance Sensors. IKI (Ilse Katz Institute for nanoscale sciences and technology at BGU) day, Beer Shiva, Israel.
10. **Shalabney, A.,** and Abdulhalim, I. **2011.** Surface Plasmon Resonance sensors with enhanced sensitivity using nano-dielectric over layer. 2<sup>nd</sup> international conference on Bio-Sensing technology, Amsterdam, The Netherlands.
11. **Shalabney, A.,** and Abdulhalim, I. **2011.** Anisotropic sculptured thin films for bio-sensing and molecular detection with SPR and SERS. NanoSensorsPhotonics 2011, a Symposium on Optical Biosensors, Nanobiophotonics and Diagnostics, Dead Sea, Israel. (*Won the best poster award*).
12. **Shalabney, A.,** and Abdulhalim, I. **2011.** Anisotropic sculptured thin films for bio-sensing and molecular detection with SPR and SERS. NanoSensorsPhotonics 2011, a Symposium on Optical Biosensors, Nanobiophotonics and Diagnostics, Dead Sea, Israel. *Invited talk from poster sessions*.
13. **Shalabney, A.,** and Abdulhalim, I. **2012.** Improving the performances of surface Plasmon resonance sensor in the infrared region by adding thin dielectric over-layer. IEEE 27-th CONVENTION OF ELECTRICAL AND ELECTRONICS ENGINEERS IN ISRAEL, Eilat, Israel, *Oral presentation*.
14. **Shalabney, A.,** Khare, C., Rauschenbach, B., and Abdulhalim, I. **2012.** Metallic Nanosculptured Thin Films for Biosensing Applications using Surface Plasmon Resonance and Enhanced Spectroscopies. IEEE 27-th CONVENTION OF ELECTRICAL AND ELECTRONICS ENGINEERS IN ISRAEL, Eilat, Israel, *Oral presentation*.

15. **Shalabney, A.**, George, J., Hutchison, J. A., Pupillo, G., Genet, C., Ebbesen, T. W. **2014**. Coherent coupling of molecular resonators with a micro-cavity mode. Surface Enhanced Spectroscopy conference (SES2014), Chemnitz, Germany.
16. **Shalabney, A.**, George, J., Hutchison, J. A., Pupillo, G., Genet, C., and Ebbesen, T.W. **2015**. Coherent coupling of molecular resonators with a micro-cavity mode. Faraday discussion 178: Nanoplasmonics, Royal Society in Chemistry, London, UK.
17. **Shalabney, A.**, George, J., Hutchison, J. A., Pupillo, G., Genet, C., and Ebbesen, T.W. **2015**. Coherent coupling of molecular resonators with a micro-cavity mode. Quantum Plasmonics conference, Benasque, Spain.
18. **Shalabney, A.**, George, J., Hutchison, J. A., Genet, C., and Ebbesen, T.W. **2015**. Molecular vibrational strong coupling. SPP7 conference, Jerusalem, Israel. *Oral presentation*.

**(e) Invited seminars:**

1. **2012**, Max Planck Institute for the science of light (MPI), Erlangen, Germany. Improved Nanophotonic and plasmonic structures for sensing and molecular detection.
  2. **2012**, Physics department, Birzeit University. Improved Nanophotonic and plasmonic structures for sensing and molecular detection.
  3. **2014**, Bio medical engineering department, Ben Gurion University, Beer Shiva, Israel. Light-matter strong coupling and potential for chemistry and biology.
  4. **2014**, Electro-optics engineering department, Ben Gurion University, Beer Shiva, Israel. Light-matter strong coupling and potential for chemistry and biology.
  5. **2014**, Electrical engineering department, Tel Aviv University, Tel Aviv, Israel. Light-matter strong coupling and potential for chemistry and biology.
  6. **2015**, Optical engineering department, Ort Braude College, Karmiel, Israel. Light-matter strong coupling and potential for chemistry and biology.
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1. **2015**, engineering faculty, Bar Ilan University, Ramat Gan, Israel. Light-matter strong coupling and potential for chemistry and biology.
  2. **2015**, chemical physics department, Weizmann institute, Rehovot, Israel. Vibrational strong-coupling, a promising approach to resolve fundamental debates in light-matter interaction.

- **Total citations number:** 442 (June, 2016)

- **H-index:** 11

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- **I10-index:** 13

- **Personal profile on Google Scholar:**

<http://scholar.google.fr/citations?hl=en&imq=Atef+Shalabney&btnA=1&user=oFGRDDEAAAAJ>