CURRICULUM VITAE

Dr. Aliasghar Ajami

Personalia

Name	Aliasghar Ajami
Date of birth	21th March 1972
Citizenship	Iranian
Marital status	Married since 1998
Proficiency in foreign languages	English (fluent), German (medium), Arabic
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Google Scholar Profile	https://scholar.google.com/citations?user=XqJJT1IAAAAJ
Scopus Profile	https://www.scopus.com/authid/detail.uri?authorId=55403165500

Employment

Assistant Professor at faculty of Physics, **Semnan University**

Research and Education

Dec 2014-Sep 2016 PostDoc research in **Vienna University of Technology**

Determining the two-photon absorption spectrum using supercontinuum white light

August 2012-Dec 2014 PostDoc research in **Vienna University of Technology**

Investigating the interaction of ultrashort laser pulses (sub ten femtosecond) with material surfaces using time of flight (TOF) Mass Spectroscopy.

July 2012 Graduation, Dr. Tech. (Ph.D.) from **Vienna University of Technology**

2007-2012 Dissertation at the Vienna University of Technology, Institute of Applied Physics: "Two-photon Modification of materials with ultra-short laser radiation: Z-scan measurements and 3D-modification of selected materials"

Feb. 1999 Graduation, M.Sc from **Sharif University** of Technology (Tehran, Iran)

1998-1999 M.Sc Thesis performed at the Faculty of Physics, Sharif University of Technology (Tehran, Iran): "Optimization of cupper vapor laser with respect to temperature"

1996-1998 Course of Studies at the Faculty of Physics, Sharif University of Technology (Tehran, Iran)

Feb. 1996 Graduation, B.Sc from **University of Isfahan** (Isfahan, Iran)

1991-1996 Course of Studies at the Faculty of Physics, University of Isfahan (Isfahan, Iran)

1987-1991 High school in Sabzevar (Iran)

Career

Since Sep 2016 Assistant Professor at Semnan University, Faculty of physics.

2010-2016 University Assistant at the Vienna University of Technology, Institute of Applied Physics

1999-2007 Working as a Physics teacher in high schools and also as a lecturer in colleges

Experience

Expert in determination of optical nonlinearity
Experienced with reflectron mass spectroscopy
Familiar with Femo-laser systems and capable to alignment a femo-amplifier
Experienced with 3D micro-nano structuring via multi-photon absorption
Familiar with embedding metal nanoparticles within the glass or polymers
Expert with Labview, Origin, Mathematica and MATLAB

Honors

2009 My proposal regarding Z-scan measurements was selected as an *innovative idea* in Vienna University of Technology and granted for three years

1996 Member of Physics Olympiad in Iran (1996)

Scientific publications

Publications in peer-reviewed international journals	**31**
Conference papers	**27**

Scientific evaluation activities **since 2012.**

Reviewer for:

Applied Optics
J. physical chemistry
J. of optical society of America (JOSA)
J. of the American Ceramic Society
Optics Express
Optics letters
Optical Materials
Optics Communications
Phys. Scripta Journal
J. physical chemistry
Optics and photonics conference

List of publications

Journal Papers:

[1] S. Najafi, A. S. Arabanian, R. Massudi, A. Ajami, and W. Husinsky, "Induced birefringence in glass: depletion and enhancement by orthogonal-polarized femtosecond pulses," Applied Physics A **126**, 411 (2020).

[2] S. Bashir, M. S. Rafique, C. S. Nathala, A. A. Ajami, W. Husinsky, and K. Whitmore, "Pulse duration and environmental effects on the surface nanostructuring and mechanical properties of zinc during femtosecond laser irradiation," Journal of the Optical Society of America B **37**, 2878-2891 (2020).

[3] R. Ahmad, M. Shahid Rafique, A. Ahmed, A. Ajami, P. Nekvindova, B. Svecova, S. Bashir, and S. Iqbal, "Femtosecond laser induced two-photon absorption in Au-ion embedded glasses," Laser and Particle Beams **37**, 61-66 (2019).

[4] M. Akram, S. Bashir, S. A. Jalil, M. ElKabbash, F. Aumayr, A. Ajami, W. Husinsky, K. Mahmood, M. S. Rafique, and C. Guo, "Femtosecond laser induced periodic surface structures for the enhancement of field emission properties of tungsten," Optical Materials Express **9**, 3183-3192 (2019).

[5] R. Ahmad, M. S. Rafique, **A. Ajami**, S. Bashir, W. Husinsky and S. Iqbal, "Influence of laser and material parameters on two photon absorption in Rhodamine B and Rhodamine 6G solutions in MeOH," Optik, Vol. 183, pp. (835-841), 2019. **(IF=1.19)**

[6] M. Tromayer, P. Gruber, A. Rosspeintner, **A. Ajami,** W. Husinsky, F. Plasser, L. A.-O. h. o. o. X. Gonzalez, E. Vauthey, A. A.-O. h. o. o. Ovsianikov and R. A.-O. h. o. o. Liska, "Wavelength-optimized Two-Photon Polymerization Using Initiators Based on Multipolar Aminostyryl-1,3,5-triazines," *Scientific Reports, 8*(1), 17273. **(IF=4.12)**

[7] **Ajami**, **A**., Husinsky, W., Ovsianikov, A., & Liska, R. (2018). Dispersive white light continuum single Z-scan for rapid determination of degenerate two-photon absorption spectra. *Applied Physics B: Lasers and Optics, 124*(7). **(IF=1.88)**

[8] Tromayer, M., A. Dobos, P. Gruber, **A**. **Ajami**, R. Dedic, A. Ovsianikov and R. Liska. "A biocompatible diazosulfonate initiator for direct encapsulation of human stem cells: Via two-photon polymerization." Polymer Chemistry **9**(22): 3108-3117. (2018) **(IF=5.37)**

[9] Arabanian, A. S., S. Najafi, **A**. **Ajami**, W. Husinsky and R. Massudi. "Birefringence profile adjustment by spatial overlap of nanogratings induced by ultra-short laser pulses inside fused silica." Applied Physics A: Materials Science and Processing **124**(2) (2018). **(IF=1.6)**

[10] Daskalova, A., A. Trifonov, I. Bliznakova, C. Nathala, **A**. **Ajami**, W. Husinsky, H. Declercq and I. Buchvarov. "Selective cell response on natural polymer bio-interfaces

textured by femtosecond laser." Applied Physics A: Materials Science and Processing **124**(2) (2018). **(IF=1.6)**

[11] **Aliasghar Ajami**, Wolfgang Husinsky, Maximilian Tromayer, Peter Gruber, Robert Liska, and Aleksandr Ovsianikov, Measurement of degenerate two-photon absorption spectra of a series of developed two-photon initiators using a dispersive white light continuum Z-scan, Appl. Phys. Lett. 111, 071901 (2017); doi: 10.1063/1.4989917. **(IF=3.4)**

[12] S. Bashir, M.S. Rafique, C.S. Nathala, **A.A**. **Ajami**, W. Husinsky, Femtosecond laser fluence based nanostructuring of W and Mo in ethanol, Physica B: Condensed Matter, 513 (2017) 48-57. **(IF=1.38)**

[13] N. Ali, S. Bashir, I.K. Umm, M. Shahid Rafique, N. Begum, W. Husinsky, **A**. **Ajami**, C.S.R. Natahala, Femtosecond laser induced nanostructuring of zirconium in liquid confined environment, Chinese Physics B, 26 (2017). **(IF=1.6)**

[14] C.S.R. Nathala, **A**. **Ajami**, W. Husinsky, B. Farooq, S.I. Kudryashov, A. Daskalova, I. Bliznakova, A. Assion, Ultrashort laser pulse ablation of copper, silicon and gelatin: effect of the pulse duration on the ablation thresholds and the incubation coefficients, Applied Physics A: Materials Science and Processing, 122 (2016) 1-8. **(IF=1.45)**

[15] S. Najafi, R. Massudi, **A**. **Ajami**, C.S.R. Nathala, W. Husinsky, A.S. Arabanian, Study on contribution of the asymmetric stress to the birefringence induced by an ultrashort single laser pulse inside fused silica glass, Journal of Applied Physics, 120 (2016) 153102. **(IF=2.07)**

[16] C.S.R. Nathala, **A**. **Ajami**, A.A. Ionin, S.I. Kudryashov, S.V. Makarov, T. Ganz, A. Assion, W. Husinsky, Experimental study of fs-laser induced sub-100-nm periodic surface structures on titanium, Optics Express, 23 (2015) 5915-5929. **(IF=3.3)**

[17] S.I. Kudryashov, S.V. Makarov, A.A. Ionin, C.S.R. Nathala, **A**. **Ajami**, T. Ganz, A. Assion, W. Husinsky, Dynamic polarization flip in nanoripples on photoexcited Ti surface near its surface plasmon resonance, Optics Letters, 40 (2015) 4967-4970. **(IF=3.41)**

[18] S. Bashir, M.S. Rafique, C.S.R. Nathala, **A**. **Ajami**, W. Husinsky, SEM and Raman spectroscopy analyses of laser-induced periodic surface structures grown by ethanol-assisted femtosecond laser ablation of chromium, Radiation Effects and Defects in Solids, (2015). **(IF=0.45)**

[19] **A**. **Ajami**, W. Husinsky, B. Svecova, S. Vytykacova, P. Nekvindova, Saturable absorption of silver nanoparticles in glass for femtosecond laser pulses at 400 nm, Journal of Non-Crystalline Solids, 426 (2015) 159-163. **(IF=2.12)**

[20] **A**. **Ajami**, P. Gruber, M. Tromayer, W. Husinsky, J. Stampfl, R. Liska, A. Ovsianikov, Evidence of concentration dependence of the two-photon absorption cross section: Determining the “true” cross section value, Optical Materials, 47 (2015) 524-529. **(IF=2.24)**

[21] Z. Li, J. Torgersen, **A**. **Ajami**, S. Muhleder, X. Qin, W. Husinsky, W. Holnthoner, A. Ovsianikov, J. Stampfl, R. Liska, Initiation efficiency and cytotoxicity of novel water-soluble

two-photon photoinitiators for direct 3D microfabrication of hydrogels, RSC Advances, 3 (2013) 15939-15946. **(IF=3.11)**

[22] Z. Li, E. Stankevicius, A. **Ajami**, G. Raciukaitis, W. Husinsky, A. Ovsianikov, J. Stampfl, R. Liska, 3D alkyne-azide cycloaddition: spatiotemporally controlled by combination of aryl azide photochemistry and two-photon grafting, Chemical Communications, 49 (2013) 7635-7637. **(IF=6.32)**

[23] Z. Li, N. Pucher, K. Cicha, J. Torgersen, S.C. Ligon, **A**. **Ajami**, W. Husinsky, A. Rosspeintner, E. Vauthey, S. Naumov, T. Scherzer, J. Stampfl, R. Liska, A straightforward synthesis and structure-activity relationship of highly efficient initiators for two-photon polymerization, Macromolecules, 46 (2013) 352-361. **(IF=5.83)**

[24] **A**. **Ajami**, Z. Li, E. Stankevičius, W. Husinsky, G. Račiukaitis, J. Stampfl, R. Liska, A. Ovsianikov, 3D photografting with aromatic azides: A comparison between three-photon and two-photon case, Optical Materials, 35 (2013) 1846-1851. **(IF=2.24)**

[25] S. Bashir, M. Shahid Rafique, A. **Ajami**, W. Husinsky, K. Umm i, The growth of nanoscale periodic and dot-like structures on the surface of stainless steel with femtosecond laser pulses in the dry and wet ambient environment, Applied Physics A: Materials Science and Processing, (2013) 1-9. **(IF=1.45)**

[26] A. Ovsianikov, Z. Li, **A**. **Ajami**, J. Torgersen, W. Husinsky, J. Stampfl, R. Liska, 3D grafting via three-photon induced photolysis of aromatic azides, Applied Physics A: Materials Science and Processing, 108 (2012) 29-34. **(IF=1.45)**

[27] **A. Ajami,** W. Husinsky, P. Nekvindova, B. Svecova, J. Pesicka, M. Janecek, Z-scan study of nonlinear absorption of gold nano-particles prepared by ion implantation in various types of silicate glasses, Optics Communications, 285 (2012) 2729-2733. **(IF=1.59)**

[28] Z. Li, M. Siklos, N. Pucher, K. Cicha, **A**. **Ajami**, W. Husinsky, A. Rosspeintner, E. Vauthey, G. Gescheidt, J. Stampfl, R. Liska, Synthesis and structure-activity relationship of several aromatic ketone-based two-photon initiators, Journal of Polymer Science, Part A: Polymer Chemistry, 49 (2011) 3688-3699. **(IF=3.25)**

[29] M.S. Rafique, S. Bashir, **A**. **Ajami**, W. Husinsky, A. Hobro, B. Lendl, Atomic force microscopy, Raman spectroscopy and nonlinear absorption properties of femtosecond laser irradiated CR-39, Applied Physics A: Materials Science and Processing, 101 (2010) 551-554. **(IF=1.45)**

[30] M.S. Rafique, S. Bashir, **A**. **Ajami**, W. Husinsky, Nonlinear absorption properties correlated with the surface and structural changes of ultra short pulse laser irradiated CR-39, Applied Physics A: Materials Science and Processing, 100 (2010) 1183-1189. **(IF=1.45)**

[31] **A**. **Ajami**, W. Husinsky, R. Liska, N. Pucher, Two-photon absorption cross section measurements of various two-photon initiators for ultrashort laser radiation applying the Z-scan technique, Journal of the Optical Society of America B: Optical Physics, 27 (2010) 2290-2297. **(IF=2.05)**

Conference Papers:

1- **Aliasghar Ajami**, Aleksandr Ovsianokov. “3D micro-nano structuring using femtosecond laser pulses”. In: Second Micro/nano technology conference (MNtech2020). Ghazwin-Iran

2- **Aliasghar Ajami**, Wolfgang Husinsky. "Micro-nano 3D structuring based on two-photon photopolymerization." In: The 25th Iranian Conference on Optics and Photonics (ICOP 2019), and the 11th Iranian Conference on Photonics Engineering and Technology (ICPET 2019). Shiraz-Iran

3- **Aliasghar Ajami**, Wolfgang Husinsky. "Sub-8 fs Pulses: a Consequence of Compressing White Light Continuum Generated by Hollow Core Fiber." In: The 24th Iranian Conference on Optics and Photonics (ICOP 2018), and the 10th Iranian Conference on Photonics Engineering and Technology (ICPET 2018). Shahrekord-Iran

4- Daskalova, A., I. Bliznakova, A. Trifonov, A. Popatanasov, H. Declercq, C. Nathala, **A**. **Ajami**, W. Husinsky and I. Buchvarov. "Femtosecond Laser Micropatterning of Chitosan Thin Films for Surface Functionalization." In *Optics InfoBase Conference Papers*, Part F82-CLEO_Europe 2017, 2017.

5- **Aliasghar Ajami,** Wolfgang Husinsky. "Evidence of Concentration dependence of the two-photon absorption cross section: Determining the “true” cross section value." In: The 21th Iranian Conference on Optics and Photonics (ICOP 2015), and the 7th Iranian Conference on Photonics Engineering and Technology (ICPET 2015). Tehran-Iran

6- M.T. Samuel Clark Ligon, Zhiquan Li, Jan Torgersen, **Aliasghar Ajami**, Arnulf Rosspeintner, New Developments in Initiators for Two- Photon Polymerization, in: Rad Tech UV/EB 2014, 2014.

7- C. Gorsche, M. Tromayer, Z. Li, J. Torgersen, **A. Ajami**, A. Rosspeintner, S. Naumov, T. Scherzer, A. Ovsianikov, R. Liska: "*Efficent synthesis of two-photon initiators via one step aldol condensation*"; Poster: Photopolymerization Fundamentals 2013, Jackson Hole; 22.09.2013 - 25.09.2013; in: "*Book of Abstracts*", (2013).

8- B. Holzer, M. Tromayer, D. Lumpi, **A**. **Ajami**, E. Horkel, W. Husinsky, A. Ovsianikov, R. Liska, J. Fröhlich: "*Cap-Linker-Cap Systems as Initiators for Two-Photon Induced-Polymerization*"; Poster: LPM 2014, Vilnius; 17.06.2014 - 20.06.2014; in: "*LPM 2014 Program & Technical Digest*", (2014), S. 260.

9- Z. Li, K. Cicha, **A**. **Ajami**, A. Rosspeintner, S. Naumov, T. Scherzer, J. Stampfl, R. Liska:
"*A facial preparation and structure property relationship of novel photoinitiators for two -photon photopolymerization*";
Vortrag: 4th Bratislava Young Polymer Scientists workshop, Bratislava; 01.10.2012 - 05.10.2012; in: "*4th Bratislava Young Polymer Scientists workshop*", (2012), ISBN: 978-80-970923-2-0; S. 83.

10- **A**. **Ajami**: "*Photo-polymerization and photo-grafting via multi-photon absorption process using ultrashort laser pulses*". In: 3rd International Conference on the Physics of Optical Materials and Devices (ICOM 2012), Belgrade/Serbia; 04.09.2012.

11- Z. Li, K. Cicha, **A**. **Ajami**, A. Rosspeintner, S. Naumov, T. Scherzer, J. Stampfl, R. Liska:
"*A Straightforward Synthesis and Structure-Property Relationship of Highly Efficient Two-photon Photoinitiators for 3D microfabrication*";
Poster: European Symposium of Photopolymer Science - ESPS 2012, Torino; 04.09.2012 - 07.09.2012; in: "*European Symposium of Photopolymer Science - Book of Abstracts*", (2012), S. 24.

12- Z. Li, X.H. Qin, A. Ovsianikov, J. Torgersen, **A**. **Ajami**, W. Husinsky, S. Mühleder, W. Holnthoner, J. Stampfl, R. Liska:
"*Novel water soluble two-photon initiators for 3D scaffold microfabrication*";
Vortrag: 5th Biomaterialsymposium, Vienna; 19.11.2012 - 21.11.2012; in: "*5th Vienna Biomaterialsymposium 19.11.-21.11.2012*", J. Stampfl (Hrg.); (2012), S. 95.

13- Z. Li, X.H. Qin, A. Ovsianikov, J. Torgersen, **A**. **Ajami**, W. Husinsky, S. Mühleder, W. Holnthoner, J. Stampfl, R. Liska:
"*Water Soluble Initiators for Two-photon Polymerization*";
Poster: The 3rd TERMIS World Congress 2012, Vienna; 05.09.2012 - 08.09.2012; in: "*Journal of Tissue Engineering and Regenerative Medicine 2012*", John Wiley & Sons, Ltd., 6/Supplement s1 (2012), ISSN: 1932-7005; S. 369.

14- Z. Li, X.H. Qin, A. Ovsianikov, J. Torgersen, **A**. **Ajami**, J. Stampfl, R. Liska:
"*3D site-specific functionalization of matrices via multi-photon grafting and subsequent click reaction*";
Poster: European Symposium of Photopolymer Science - ESPS 2012, Torino; 04.09.2012 - 07.09.2012; in: "*European Symposium of Photopolymer Science - Book of Abstracts*", (2012), S. 25.

15- Z. Li, X.H. Qin, A. Ovsianikov, J. Torgersen, S. Mühleder, W. Holnthoner**, A. Ajami**, W. Husinsky, J. Stampfl, R. Liska:
"*Water Soluble Initiators for Two-photon Polymerization*";
Poster: European Symposium of Photopolymer Science - ESPS 2012, Torino; 04.09.2012 - 07.09.2012; in: "*European Symposium of Photopolymer Science - Book of Abstracts*", (2012), S. 26.

16- M. Tromayer, P. Gruber, **A. Ajami**, A. Rosspeintner, S. Naumov, A. Ovsianikov, J. Stampfl, R. Liska:
"*Synthesis And Characterization Of Aminostyryl-1,3,5-Triazines As Initiators For*

Two-Photon Induced Polymerization"; Poster: ESPS 2014, Vienna; 09.09.2014 - 12.09.2014; in: "*3rd European Symposium of Photopolymer Science*", (2014), ISBN: 978-3-9502992-9-8; S. 220.

17- M. Tromayer, Z. Li, J. Torgersen, **A. Ajami**, A. Rosspeintner, S. Naumov, R. Liska: "*Preparation and characterization of novel type I/ type II photoinitiators for two-photon submicro-stereolithography*"; Poster: Austrian - Slovenian Polymer Meeting - ASPM 2013, Bled; 03.05.2013 - 05.05.2013; in: "*The Proceedings of the Austrian - Slovenian Polymer Meeting - ASPM 2013*", M. Zigon, T. Rajsp (Hrg.); (2013), 978-961-269-992-5; 307 S.

18- M. Tromayer, Z. Li, J. Torgersen, **A. Ajami**, A. Rosspeintner, S. Naumov, T. Scherzer, A. Ovsianikov, R. Liska: "*Novel Highly Efficient Initiators For Two-Photon Induced Photopolimerization*"; Vortrag: RadTech Europe 2013, Basel; 15.10.2013 - 17.10.2013; in: "*Abstract Book*", (2013), S. 40.

19- M. Tromayer, L. Zhiquan, E. Stankevicius, P. Gruber, **A. Ajami**, W. Husinsky, G. Račiukaitis: "*High-resolution 3D patterning via multi-photon grafting with aromatic azides*"; Poster: LPM 2014, Vilnius; 17.06.2014 - 20.06.2014; in: "*LPM 2014 Program & Technical Digest*", (2014), S. 262.

20- **A. Ajami,** "*Saturation of Absorption for Silver Nanoparticles in Glass irradiated with Femtosecond Laser pulses at 400 nm*"; The 21th Iranian Conference on Optics and Photonics (ICOP 2015), and the 8th Iranian Conference on Photonics Engineering and Technology (ICPET 2015). Tehran/Iran

21- **A. Ajami**, Z. Li, A. Ovsianikov, J. Torgersen, J. Stampfl, W. Husinsky: "*Effect of Concentration of Chromophores on Two-photon Absorption Cross Section*"; Poster: 50 years of nonlinear optics, NLO 50 International Symposium, Barcelona/Spain; 08.10.2012 - 10.10.2012.

22- W. Husinsky, C. Nathala, **A. Ajami**, A. Assion: "*Influence of the pulse duration on the ablation threshold and the incubation coefficient of copper and silicon upon irradiation by femtosecond laser pulses*"; Poster: International Conference on Laser Ablation (COLA 2015), Cairns/Australia; 01.09.2015.

23- S. Ligon, M. Tromayer, Z. Li, J. Torgersen, **A**. **Ajami**, A. Rosspeintner, S. Naumov, T. Scherzer, J. Stampfl, R. Liska: "*New Developments in Initiators for Two-Photon Polymerization*"; Vortrag: RadTech USA 2014, Chicago (Rosemont); 12.05.2014 - 14.05.2014.

24- N. Pucher, **A**. **Ajami**, K. Cicha, W. Husinsky, J. Stampfl, R. Liska, Optimization of feature resolution, processing window & structuring time for the two-photon polymerization (2PP) process by the use of novel initiators", In: The 11th International Symposium on Laser Precision Microfabrication, 2010.

25- A.R. Niklas Pucher, **Aliasghar Ajami**, Wolfgang Husinsky, Georg Gescheidt, Jürgen Stampfl and Robert Liska, Photochemistry and Photophysics of Two-Photon Initiators", in: RadTech Europe Conference Proceedings 2009.

26- W. Husinsky, S. Bashir, M.S. Rafique, **A**. **Ajami**, Laser analytical probing of ultra-short-laser-matter interaction: Ejected particles and surface topography, in: AIP conference American Institute of Physics, Nagoyo, 2009, pp. 79-89.

27- **A**. **Ajami**, M.S. Rafique, N. Pucher, S. Bashir, W. Husinsky, R. Liska, R. Inführ, H. Lichtenegger, J. Stampfl, S. Lüftenegger, Z-scan measurements of two-photon absorption for ultrashort laser radiation, in: SPIE, 2008, pp. 70271H-70271.