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13513 Tallinn, Estonia
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About

Entrepreneurial experience - 5+ years.

Research experience - 20 years.

Project Manager - >10 projects.

Publications in scientific peer reviewed journals - 37. h-index - 12, i10-index - 15.

Author of IP- 5 patents.

Link to curriculum:

<https://scholar.google.com/citations?user=vdl6lQ8AAAAJ&hl=en>

https://www.etis.ee/CV/Marina_Aghayan001/eng

<https://www.linkedin.com/in/marina-aghayan-27629023/>

Areas of Expertise

- Project design and management
- Work plan design, Design of Experiments
- Research and Reports
- Technology and Material Development
- Additive manufacturing
- Mechanical and Bio Engineering

Professional Experience

09.2021-present	Head of research group , Institute of Chemical Physics NAS RA, Armenia
07.2021-present	Co-founder, Project Manager at AIP TECH LLC , Yerevan, Armenia
06.2018-present	Co-founder, Chief executive officer at FACT Industries OÜ, Tallinn, Estonia
02.2012-05.2018	Researcher at Tallinn University of Technology, Tallinn, Estonia
06.2017-02.2018	Visiting Researcher at Institute of Ceramics and Glasses, Madrid, Spain
09.2012-02.2013	Visiting Researcher at AALTO University, Espoo, Finland
04.2011-10.2011	Chemist Analyst at "Arpimed" pharmaceutical company, Yerevan, Armenia
07.2010-03.2011	Researcher at Institute of Ceramics and Glasses, Madrid, Spain
06.2007-08.2010	Early Stage Researcher, Vice President of Trade Union at Institute of Chemical Physics Yerevan, Armenia

Entrepreneurship

10. 2017	<i>Founder, Board member</i> of FACT Industries OÜ , Tallinn, Estonia
01.2020	<i>Founder, Board member</i> of AIP Tech LLC , Yerevan Armenia

Education

Doctor of Philosophy | 02.2012-04.2016

Tallinn University of Technology | Faculty of Mechanical Engineering Tallinn, Estonia

Thesis: Functionalization of Alumina Nanofibers with Metal Oxides Reduction

Master of Science | 09.2008-06.2016

Yerevan State University | Faculty of Chemistry, Yerevan, Armenia

Thesis: Distinctive Features of Nonisothermal Interaction in Micro-Nanosize Mo/Si Diffusion Couple

Bachelor of Science | 09.2003-06.2007

Yerevan State University | Faculty of Chemistry, Yerevan, Armenia

Thesis: Synthesis of Fine Boron Nitride Powders by Combining Direct Boron Nitridation with Carbothermic Boron Oxide

Languages

Armenian: native
Russian: fluent
English: fluent
Spanish: basic

Projects

10.2021-09.2023	Project manager 3D Տպագրությամբ Բիոակտիվ Բիոքայքայվող Իմպլանտների Արտադրություն Ոսկրայինհյուսվածքների Վերականգնման Համար, Կիրառական Արդյունքի Ձեռքբերմանն Ուղղված Գիտական Նախագծեր Մրցույթ
10.2021-09.2022	Project manager 3D տպագրվող կենսաակտիվ և կենսաքայքայվող կերամիկական կյութերի սինթեզ, «Գաղափարից մինչև բիզնես» դրամաշնորհներ»
09.2020-04.2022	Project manager Investigation of additive manufacturing of improved ceramic packages for detectors using highly thermally conductive materials, contracted with European Space Agency
06.2020-12.2020	Project manager Additive manufacturing of multimaterial ceramic packages, funded by EIT Raw Materials, AGREEMENT NO 19458-BCLC-COVID BOOSTER-2020-8
01.2020-12.2020	Project manager Creating additive manufacturing laboratory in Armenia, entrepreneurship grant NERUZH
10.2019-12.2021	Project manager Investigation of Additive Manufacturing of improved ceramic packages for detectors, subcontracted by RHP Technology, funded by European Space Agency
09.2019-08.2020	Project manager Establishing production line of FACT Tech powder. Funded by Enterprise Estonia
09.2019-08.2020	Project manager Establishing production line of FACT Tech powder. Funded by Enterprise Estonia

09.2019-12.2019	Project manager Additive manufacturing of high thermal conductivity materials, FAST Track, funded by EIT Raw Materials
05.2018-12.2018	Project manager Powders for 3D printing of heat sinks, under the EIT/ KIC RawMaterials Booster Funding programme, 15099-BCLC-2018-3
06.2017-12.2017	Principal Investigator Self-functionalizing composite powders for 3D printing of ceramic components, JECS Trust
11.2016-10.2017	Principal investigator NICAT Prototyping of Nickel-based Catalyst for Methane Steam Reforming and Carbon Dioxide Methanation; PROTOTRON
01.2014-12.2019	Investigator IUT19-29 Multi-scale structured ceramic-based composites for extreme applications; Estonian Ministry of Education and Research (IUT19-29)
01.2016-05.2018	Investigator PUT1063 Nanonet of ceramic fibers with targeted functionalities; Estonian Research Agency (ETAG)
08.2012-06.2015	Investigator AR12133 NanoCom – Nano-geometry and entanglement for design and prototyping of ceramic-based high-performance nanocomposites (NanoCom)
2012-2013	Investigator G8211 Design for Ultra-Hard While Tough Ceramic-Metal Composites; 2012–2013; Estonian Science Foundation

Intellectual properties

- Invention: Self-functionalizing fibrous networks of Si₃N₄ with complex geometry and manufacturing thereof; Owners: Tallinn University of Technology ; Authors: Le Liu, Tatevik Minasyan, Sofiya Aydinyan, Marina Aghayan, Irina Hussainova; Priority number: EP17174463.4; Priority date: 5.06.2017.

- Invention: Method for synthesizing rhombohedral FeAlO₃ nanofibers and product comprising said nanofibers thereof; Owners: Tallinn University of Technology ; Authors: Marina Aghayan, Nikhil Kumar Kamboj, Irina Hussainova; Priority number: P201600017; Priority date: 15.08.2016.
- Invention: Method for producing nanofibers composed of NiO and NiAl₂O₄ by combustion techniques and product comprising said nanofibers thereo; Owners: Tallinn University of Technology ; Authors: Marina Aghayan, Irina Hussainova; Priority number: GB1504007.4; Priority date: 10.03.2015.
- Invention: Катализатор, способ приготовления катализатора и способы окислительной конверсии углеводородов, гидрирования оксидов углерода и углеводородов; Owners: Федеральное государственное бюджетное учреждение науки Институт катализа им. Г.К. Борескова Сибирского отделения Российской академии наук; Authors: Marina Aghayan, Irina Hussainova, Dmitriy I. Potemkin, V. Sobyenin, S. Uskov, P. Snytnikov; Priority number: RU2016123882; Priority date: 15.06.2016.

Articles

2020

Manufacturing of silicon–Bioactive glass scaffolds by selective laser melting for bone tissue engineering

C Sara Rodrigo-Vázquez, Nikhil Kamboj, Marina Aghayan, Ada Sáez, H Antonio, Miguel A Rodríguez, Irina Hussainova, *Ceramics International* 46 (17), 26936-26944, 2,2020

2019

Minasyan, T.; Liu, L.; Aghayan, M.; Rodriguez, M. A.; Aydinyan, S.; Hussainova, I. (2019).

Mesoporous fibrous silicon nitride by catalytic nitridation of silicon. *Progress in Natural Science Materials International*, 29 (2), 290–297. DOI: 10.1016/j.pnsc.2019.03.017.

Kamboj, N.; Aghayan, M.; Rodrigo-Vazquez, C. S.; Rodríguez, M. A.; Hussainova, I. (2019). Novel silicon-wollastonite based scaffolds for bone tissue engineering produced by selective laser melting. *Ceramics International*, 45, 24691–24701. DOI: 10.1016/j.ceramint.2019.08.208.

Kamboj, N.; Aghayan, M.; Rodriguez, A. M.; Hussainova, I. (2019). Synthesis of porous bioceramic (silicon-calcium silcate) scaffolds for local delivery of vancomycin. 43rd International Conference & Exposition on Advanced Ceramics and Composites. January 27– February 1, 2019 Daytona Beach, Florida. Abstract Book: 43rd International Conference and Exposition on Advanced Ceramics and Composites (ICACC19), January 27-February 1, 2019, Florida, USA. American ceramic society (ACerS), 190.

2018

Potemkin, D. I.; Aghayan, M.; Uskov, S. I.; Snytnikov, P. V.; Kamboj, N.; Rodríguez, M. A.; Hussainova, I.; Sobyenin, V. A. (2018). Fibrous alumina-based Ni-CeO₂ catalyst: synthesis, structure

and properties in propane pre-reforming. *Materials Letters*, 215, 35–37. DOI: 10.1016/j.matlet.2017.12.039.

Kamboj, N.; Aghayan, M.; Rubio-Marcos, F.; Nazaretyan, K.; Rodríguez, M. A.; Kharatyan, S.; Hussainova, I. (2018). Nanostructural evolution in mesoporous networks using in situ High-Speed Temperature Scanner. *Ceramics International*, 44 (11), 12265–12272. DOI: 10.1016/j.ceramint.2018.04.010.

Minasyan, T.; Aghayan, M.; Liu, L.; Aydinyan, S.; Kollo, L.; Hussainova, I.; Rodríguez, M. (2018). Combustion synthesis of MoSi₂ based composite and selective laser sintering thereof. *Journal of the European Ceramic Society*, 38 (11), 3814–3821. DOI: 10.1016/j.jeurceramsoc.2018.04.043.

Minasyan, T.; Liu, L.; Aghayan, M.; Kollo, L.; Kamboj, N.; Aydinyan, S.; Hussainova, I. (2018). A novel approach to fabricate Si₃N₄ by selective laser melting. *Ceramics International*, 44 (12), 13689–13694. DOI: 10.1016/j.ceramint.2018.04.208.

Saffarshamshirgar, A.; Aghayan, M.; Tripathi, T. S.; Karppinen, M.; Gasik, M.; Hussainova, I. (2018). Time-effective synthesis of rhombohedral CuAlO₂ from mesoporous alumina substrate. *Materials & Design*, 147, 48–55. DOI: 10.1016/j.matdes.2018.03.031.

Minasyan, T.; Liu, L.; Aydinyan, S.; Kollo, L.; Aghayan, M.; Hussainova, I. (2018). Lattice of MoSi₂/Si₃N₄ by selective laser melting. EuroPM 2018, Congress and Exhibition, Bilbao, Spain, 14-18 October. European Powder Metallurgy Association, 3993050.

Minasyan, T.; Rodríguez, M. A.; Liu, L.; Aghayan, M.; Kollo, L.; Hussainova, I. (2018). MoSi₂ based Composites Preparation by Combustion Synthesis with Subsequent Selective Laser Sintering. CIMTEC 2018 - 14th International Conference on Modern Materials and Technologies, Perugia, Italy, 14th International Ceramics Congress (June 4-8), 2018. CIMTEC-2018.

Kamboj, N.; Rodrigo-Vazquez, C.; Hussainova, I.; Rodríguez, M.; (2018). Silicon and calcium silicate ceramics for bone repair applications manufactured by selective laser melting. 2018 young Ceramists Additive Manufacturing Forum, yCAM, Padova, Italy, 3-4 May. ECerS.

2017

Aghayan, M.; Hussainova, I.; Kirakosyan, K.; Rodríguez, Miguel A. (2017). The template-assisted wet-combustion synthesis of copper oxide nanoparticles on mesoporous network of alumina nanofibers. *Materials Chemistry and Physics*, 192, 138–146. DOI: 10.1016/j.matchemphys.2017.01.068.

Aghayan, M.; Potemkin, D. I.; Rubio-Marcos, F.; Uskov, S. I.; Snytnikov, P. V.; Hussainova, I. (2017). The template-assisted wet-combustion synthesis of fibrous nickel-based catalyst for carbon dioxide

methanation and methane steam reforming. *ACS Applied Materials & Interfaces*, 9 (50), 43553–43562. [10.1021/acsami.7b08129](https://doi.org/10.1021/acsami.7b08129).

Aydinyan, S.; Minasyan, T.; Kirakosyan, H.; Aghayan, M.; Hussainova, I.; Kharatyan, S. (2017). Fabrication of Cu-Mo composites combining SHS and SLS technologies. *ECerS2017 15th Conference & Exhibition of the European Ceramic Society: July 9–13, 2017, Budapest, Hungary: Book of Abstracts: ECerS2017 / July 9–13, 2017 / Budapest, Hungary*. Budapest: Akadémiai Kiadó, 48.

Minasyan, T.; Rodríguez, M. A. Liu, L.; Aghayan, M.; Kollo, L.; Hussainova, I. (2017). Selective Laser Melting For Manufacturing of MoSi₂/Si₃N₄ Composites. *ECerS2017: 15th Conference & Exhibition of the European Ceramic Society July 9–13, 2017, Budapest, Hungary: Book of Abstracts: 15th Conference & Exhibition of the European Ceramic Society 2017, July 9-13, 2017, Budapest, Hungary*. AKCongress, 77–78.

Kamboj, N; Aghayan, M; Rodriguez, M; Hussainova, I. (2017). Direct synthesis of core-shell structured NiO/NiAl₂O₄/Al₂O₃ nanofibers by wet-combustion method. *5th International Conference on Multifunctional, Hybrid and Nanomaterials, 6 March 2017 - 10 March 2017, Lisbon, Portugal*. Elsevier.

2016

Kirakosyan, K.; Aghayan, M.; Taleb, M.; Hussainova, I.; Rodríguez, M. A. (2016). Homogeneous deposition of copper oxide on mesoporous 1D alumina nanofibers by combustion approach. *Proceedings of the Estonian Academy of Sciences*, 65 (2), 1–4. DOI: [10.3176/proc.2016.2.06](https://doi.org/10.3176/proc.2016.2.06).

Drozdova, M.; Hussainova, I.; Pérez-Coll, D.; Aghayan, M.; Ivanov, R.; Rodríguez, M.A. (2016). A novel approach to electroconductive ceramics filled by graphene covered nanofibers. *Materials & Design*, 90, 291–298. DOI: [10.1016/j.matdes.2015.10.148](https://doi.org/10.1016/j.matdes.2015.10.148).

Drozdova, M.; Perez-Coll, D.; Aghayan, M.; Ivanov, R.; Rodriguez, M.A.; Hussainova, I. (2016). Effect of hybrid graphene/alumina nanofibers content on mechanical and electrical properties of zirconia. In: Hussainova, I.; Veinthal, R. (Ed.). *Engineering Materials and Tribology (15–20)*. Trans Tech Publications Ltd. (Key Engineering Materials ; 674). DOI: [10.4028/www.scientific.net/KEM.674.15](https://doi.org/10.4028/www.scientific.net/KEM.674.15).

Aghayan, M.; Hussainova, I. (2016). Fabrication of NiO/NiAl₂O₄ nanofibers by combustion method. In: Hussainova, I.; Veinthal, R. (Ed.). *Engineering Materials and Tribology (31–34)*. Trans Tech Publications Ltd. (Key Engineering Materials; 674). [10.4028/www.scientific.net/KEM.674.31](https://doi.org/10.4028/www.scientific.net/KEM.674.31).

2015

Ivanov, Roman; Hussainova, Irina; Aghayan, Marina; Drozdova, Maria; Perez-Coll, Domingo;

Rodriguez, Miguel A.; Rubio-Marcos, Fernando (2015). Graphene-encapsulated aluminium oxide nanofibers as a novel type of nanofillers for electroconductive ceramics. *Journal of the European Ceramic Society*, 35 (14), 4017–4021. DOI: 10.1016/j.jeurceramsoc.2015.06.011.

Aghayan, M.; Gasik, M.; Hussainova, I.; Rubio-Marcos, F.; Kollo, L.; Kubarsepp, J. (2015). Thermal and microstructural analysis of doped alumina nanofibers. *Thermochimica Acta*, 602, 43–48.10.1016/j.tca.2015.01.009.

2014

Kharatyan, S.L.; Aghayan, M.A.; Chatilyan, H.A. (2014). Interaction Modes in Mo/Si Diffusion Couple at Non-Isothermal Conditions. *International Journal of Self-Propagating High-Temperature Synthesis*, 23 (3), 138–140.

Voltsihhin, N.; Rodriguez, M.; Hussainova, I.; Aghayan, M. (2014). Low temperature spark plasma sintering behaviour of zirconia added by a novel type of alumina nanofibers. *Ceramics International*, 40, 7235–7244.10.1016/j.ceramint.2013.12.063.

Aghayan, M.; Voltsihhin, N.; Rodríguez, M.A.; Marcos, F.R.; Dong, M.; Hussainova, I. (2014). Functionalization of gamma-alumina nanofibers by alpha-alumina via solution combustion synthesis. *Ceramics International*, 40 (8), 12603–12607.10.1016/j.ceramint.2014.04.087.

Drozdova, M.; Ivanov, R.; Aghayan, M.; Hussainova, I.; Dong, M.; Rodrigez, M.A. (2014). Fabrication of alumina nanocomposites reinforced by a novel type of alumina nanofibers and graphene coated nanofibers. *Proceedings of the 9th International Conference of DAAAM Baltic Industrial Engineering : 24-26st April 2014, Tallinn, Estonia: 9th international conference of DAAAM Baltic industrial engineering; April 24 -26, 2014; Tallinn, Estonia. Ed. Otto. T. Estonia: TUT, 337–341.*

Ivanov, R.; Hussainova, I.; Aghayan, M.; Petrov, M. (2014). Graphene coated alumina nanofibers as zirconia reinforcement. *Proceedings of the 9th International Conference of DAAAM Baltic Industrial Engineering : 24-26st April 2014, Tallinn, Estonia: 9th international conference of DAAAM Baltic industrial engineering; April 24 -26, 2014; Tallinn, Estonia. Estonia: TUT, 348–353.*

Hussainova, I.; Drozdova, M.; Aghayan, M.; Ivanov, R.; Pérez-Coll, D. (2014). Graphene Covered Alumina Nanofibers as Toughening Agent in Alumina Ceramics. In: P. Vincenzini (Ed.). *13th International Ceramics Congress (49–53)*. . Trans Tech Publications Ltd. (Advances in science and Technology; 88). DOI: 10.4028/www.scientific.net/AST.88.49.

Aghayan, Marina; Hussainova, Irina; Gasik, Michael; Kollo, Lauri (2014). Influence of Interphases on the Mechanical Properties of Alumina Nanofibers Reinforced Alumina Nanocomposite. *Proceedings of the 1st International Symposium on Nanoparticles/Nanomaterials and Applications.: 1st*

International Symposium on Nanoparticles/Nanomaterials and Applications.

2013

Aghayan, M.; Hussainova, I.; Gasik, M.; Kutuzov, M.; Friman, M. (2013). Coupled thermal analysis of novel alumina nanofibers with ultrahigh aspect ratio. *Thermochimica Acta*, 574, 140–144.10.1016/j.tca.2013.10.010.

Kharatyan S. L.; Chatilyan H. A.; Aghayan M. A.; Rodríguez M. A. (2013). Non-Isothermal Phenomena in Mo/Si Diffusion Couple: Reaction Kinetics and Structure Formation. *International Journal of Self-Propagating High-Temperature Synthesis*, 22 (1), 18–26.10.3103/S1061386213010044.

2012

Aghayan, M; Rodríguez, M (2012). Influence of fuels and combustion aids on solution combustion synthesis of bi-phasic calcium phosphates (BCP). *Materials Science and Engineering C*, 32 (8), 2464–2468.10.1016/j.msec.2012.07.027.

Rodríguez, M.; Aguilar, C.; Aghayan, M. (2012). Solution combustion synthesis and sintering behavior of CaAl₂O₄. *Ceramics International*, 38 (1), 395–399.

2010

Aghayan, M.; Chatilyan, H.; Kharatyan, S. (2010). Distinctive Features of Nonisothermal Interaction in Micro-Nanosize Mo/Si Diffusion Couple. *Chemical Journal of Armenia*, 63 (2), 172–192.

Aghayan, M; Chatilyan, H; Kharatyan, S (2010). Reaction Kinetics and Phase Formation Laws in Mo/Si Macro/nanoscale Diffusion Couple. CIMTEC 12th.

2009

Aghayan, M.; Khachatryan, H.; Kharatyan, S. (2009). Synthesis of Fine Boron Nitride Powders by Combining Direct Boron Nitridation with Carbothermic Boron Oxide Reduction. *International Journal of Self-Propagating High-Temperature Synthesis*, 18 (1), 46–50.

Supervised Dissertations

Ali Saffarshamshirgar, Master's Degree, 2017, (sup) Irina Hussainova; Marina Aghayan, Reactive dip-coating of P-type transparent semiconducting CuAlO₂, Tallinn University of Technology School of Engineering, Department of Mechanical and Industrial Engineering.

Nikhil1 Kumar Kamboj, Master's Degree, 2016, (sup) Irina Hussainova; Marina Aghayan, Chemical functionalization of alumina nanofibers, Tallinn University of Technology Faculty of Chemical and

Materials Technology

Nikhil Kumar Kamboj, Research Master's Degree, 2016, (sup) Irina Hussainova; Marina Aghayan,
The template-assisted wet-combustion synthesis of mesoporous core-shell structured materials.,
Tallinn University of Technology.