TO MAGNIFICO RETTORE OF UNIVERSITA' DEGLI STUDI DI MILANO **ID CODE 5854**

I the undersigned asks to participate in the public selection, for qualifications and examinations, for the awarding of a type B fellowship at **Dipartimento di** Fisica Aldo Pontremoli Scientist- in – charge: f Prof. Zaccone Alessio

[Name and surname]

CURRICULUM VITAE

PERSONAL INFORMATION

Surname	Taghizadeh Bajgirani
Name	Kianoosh

PRESENT OCCUPATION

Appointment	Structure
04.2023 – 10.2023	Research assistant, Karlsruhe Institute of Technology, DE
04.2020 – 03.2023	Post-doc fellow, University of Stuttgart, DE
10.2019 – 02.2020	Research assitant, University of Twente, NL

EDUCATION AND TRAINING

Degree	Course of studies	University	year of achievement of the degree
Degree (Bachelor)	Mechanical Engineering	Malek-Ashtar University of Technology, IR	2012
Master	Computational Materials Science	Technische Universität Bergakademie Freiberg, DE	2014
PhD	Elasticity and Wave Propagation in Granular Materials	University of Twente, NL (European Marie Curie, T-MAPPP project)	2019

REGISTRATION IN PROFESSIONAL ASSOCIATIONS

Date of registration	Association	City

FOREIGN LANGUAGES

Languages	level of knowledge
English	C1
Dutch	B1
German	B1
Persian	Mother tongue

AWARDS, ACKNOWLEDGEMENTS, SCHOLARSHIPS

Year	Description of award
2023	Erasmus+ travel fund, Karlsruhe Institute of Technology, DE, **2000€**
2021	FAIR Data fund, **3500€, NL**
2019 &2021	4TU.High Tech Materials, **2×3025€=6050€, NL**
2019 &2021	Workshop organization fund granted by Lorentz Center, **2×6875€=13750€** in-cash & **2×25000€=50000€** in-kind support, NL
2021	IRN-GeoMechanic travel fund, **1500€**, FR
2019	German Research Foundation (DFG) fund (co-author of the application to pursue my post-doc research), **269.700€**, DE
2017	Best research video, **1000€**, *Powders* & *Grains conference, Montpelier, FR*
2017	Erasmus+ mobility program student supervision scholarship **2340€**, *OvG University Magdeburg, DE*
2016	Erasmus+ mobility program student supervision scholarship **1800€**, *University of Padova, It*
2014	DAAD Prize for outstanding achievements of international students studying at German universities, *Technische Universität Bergkademie Freiberg, DE*

TRAINING OR RESEARCH ACTIVITY

Research visits

• Hydro-fracturing using a novel CFD/DEM-based thermo-hydro=mechanical approach in collaboration with
Prof.Tejchman *Gdansk University of Technology, Gdansk, PL*, 2023 (2 weeks)
• Powders and Granular Materials Challenges and Future Trends workshop & collaboration with Prof.Rdjai *CNRS, Montpelier, FR*, 2019 (1 week), & 2022 (3 weeks)
• Collaboration with Prof.Larese, *CIMNE, Barcelona, SP*, 2016 (2 weeks), 2017 (2 weeks), & 2018 (2 weeks)
• Collaboration with Prof.Steeb *Ruhr-Universität Bochum, DE*, 2016 (2 weeks)
• Design of Experiments workshop & collaboration with Prof.Kwade *Technische Universität Braunschweig, DE*, 2016 (1 week)

Research management and administrative activities

• Guest editor, “Image is Everything: Recent Developments in the Imaging of Particulate and Multiphase Systems”, *Particulogy*, 2022
• Guest editor, “Recent Advances in Understanding the Static and Creeping Response of Granular Packings”, *Frontiers in Physics*, 2021
• Guest editor, “Towards Modelling Solids and Multiphase Flow for Large Scale Industrial Systems and

Applications", *Particulogy*, 2020
• Guest editor, *ALERT Geomaterials*, 2017
• Multiscale mechanics (MSM) web administrator, 2014-2019
• *Organiser of:* Workshop on Granular Matter across Scales, Lorentz Institute, Leiden, NL, March 2019; Workshop on Image is Everything across Scales, Lorentz Institute, Leiden, NL, September 2021; ALERT doctoral school 2017, Aussois, FR; DEM8 conference; CuriousU international summer school, University of Twente, NL, August 2015&2016; Early stage career summer school, University of Twente, NL, February 2016
• *Reviewer for:* Powder technology (1), Granular matter (15), Particuology (1), Powders and grains 2017 (2), Powders and grains 2021 (5), Applied Mathematical Modelling (2), International Journal for Numerical Methods in Engineering (1), Fatigue & Fracture of Engineering Materials & Structures (1), International Journal of Mechanical Sciences (1)
• Coordinator of *Multiscale methods and analyses* workpackage within T-MAPPP Marie Curie consortium, 2014–2017
• Student representative of Mechanical Engineering master students , *Faculty of Mechanical, Process and Energy Engineering, Technische Universität Bergkademie Freiberg*, 2012–2014

PROJECT ACTIVITY

Year	Project
2023	Comparison of the response envelope of granular soils by Discrete Element Method and Experiments, Karlsruhe Institute of Technology, DE
2022-present	Wave propagation in soft particles using Material Point Method in collaboration with CNRS, Montpelier, FR
2021-present	Wave propagation and Elasticity in granular mixtures using Discrete Element Method in collaboration with kyoto sangyo university
2020-present	Force network analysis of packings made of spherical particles using Discrete Element Method and Persistent Homology together with New Jersey Institute of Technology, USA
2019-2022	Development of in-situ experimental setup to obtain micro-information using wave propagation setup combined with X-ray custom made setup, University of Stuttgart, DE
2015-2017	Micro-based constitutve model development and implementation of it in Kratos (open-source platform) together with Centro Internacional de Métodos Numéricos en la Ingeniería, Barcelona, ES
2016-2018	Hertzian contact improvement to take into account the effect of neighboring particles during the compression together with TU Braunschweig, DE
2012-2014	Ductile crack initiation and propagation using Abaqus, Technische Universität Bergakademie Freiberg, DE

PATENTS

Patent

CONGRESSES AND SEMINARS

Date	Title	Place
2023	Micro understanding of the elastic response of soft/tiff	*DEM10*, Erlangen, DE

	mixture packings using multi-modular X-ray characterisation and Discrete Element Method	
2022	Understanding slow compression of particles by network analysis and DEM	*WCPT9*, Madrid, ES
2022	Morphology of granular packings,	*ESMC11*, Galway, IE,
2021	Experimental and numerical study of the effects of granular mixture composition on the elastic moduli	*GAMM–virtual*
2021	Energy propagation in 1D granular soft-stiff chain	*Powder* & *Grains–virtual*,
2020	Elasticity and wave propagation in granular materials	*Physics at Veldhoven*, Veldhoven, NL
2020	Micromechanical study of the elastic stiffness in isotropic frictional granular solids	*DEM8*, Enschede, NL
2018	Wave propagation in sand-rubber mixtures	*ESMC*, Bologna, IT
2018	Influence of Irreversible Contacts on the Stiffness of Dense Polydisperse Packings,	*Micro to MACRO Mathematical Modelling in Soil Mechanics workshop 2018*, Calabria, IT
2017	Elastic waves in particulate glass-rubber mixture: experimental and numerical investigations/studies	*Powder* & *Grains*, Montpelier, FR
2017	Influence of dry cohesion on the micro-and macro-mechanical properties of dense polydisperse	powders & grains, *Particles*, Hanover, DE
2017	Understanding the effects of inter-particle contact friction on the elastic moduli of granular materials	IFPRI Powder Flow workshop, Amsterdam, NL
2016	Discrete element modelling of dry cohesion and frictional sand Packings	*DEM7*, Dalian, CH
2016	Numerical simulation of frictional granular particles	*WCCM*, Seoul, SK, 2016
2015	Elastic response of granular packings	*ESMC*, Madrid, ES
2015	Understanding the effects of inter-particle contact friction on the elastic moduli of granular materials	*Particles*, Barcelona, ES
2015	Small strain stiffness response of granular systems	*EM symposium*, Papendal, NL
2012	Mode mixed, critical fracture load, and stress distribution in U-notches under mixed mode (I+II) loading	ICMEAT 2012, Isfahan, IRI

PUBLICATIONS

Books
Taghizadeh, K., Basak, R., & Kondic, L. "On transitions in granular packings exposed to compression", (2023).
Taghizadeh, K., Luding, S., & Steeb, H. SPP 1897 "Calm, Smooth, and Smart", (2023).
Taghizadeh, K., Combe, G., & Luding, S., "ALERT Doctoral School 2017 Discrete Element Modeling", (2017).

Articles in reviews
Taghizadeh, K., Luding, S., & Steeb, H. Small strain stiffness in unsaturated glass-rubber mixtures, *in prep*.
Taghizadeh, K., Magnanimo, V., & Luding, S. From elastic to the plastic response of frictional and cohesive granular particles, *in prep*.
Taghizadeh, K., Luding, S., & Magnanimo, V. Micro-mechanical study of the elastic stiffness in isotropic granular solids, *In prep*
Taghizadeh, K., Luding, S., Basak, R., & Kondic, L. (2023). Understanding slow compression of frictional soft granular matter by network analysis. *Soft Matter* (*under-review*).

Saitoh, K., **Taghizadeh, K.**, & Luding, S., (2023). X-ray 3D imaging–based micro understanding of granular mixtures: Stiffness enhancement by adding small fractions of soft particles. *Frontiers in Physics*, 11 (2023): 1192270.
Taghizadeh, K., Ruf, M., Luding, S., & Steeb, H., (2023). X-ray 3D imaging–based micro understanding of granular mixtures: Stiffness enhancement by adding small fractions of soft particles. *PNAS*, 120.26 (2023): e2219999120.
Luding, S., **Taghizadeh, K.**, Cheng, C., & Kondic, L. (2022). Understanding slow compression and decompression of frictionless soft granular matter by network analysis. *Soft Matter*, 18.9(2022): 1868-1884.
Ruf, M., **Taghizadeh, K.**, & Steeb, H. (2022). Visualizing particle networks in granular media by in situ X-ray computed tomography. *GAMMMitteilungen* 2022, e202200011.
Taghizadeh, K., Steeb, H., Luding, S., & Magnanimo, V. (2021). Elastic waves in particulate glass-rubber mixtures. *Proceedings of the Royal Society A*, 477(2249), 20200834.
Taghizadeh, K., Shrivastava, R. K., & Luding, S. (2021). Stochastic Model for Energy Propagation in Disordered Granular Chains. *Materials*, 14(7), 1815.
Giannis, K., Schilde, C., Finke, J. H., Kwade, A., Celigueta, M. A., **Taghizadeh, K.**, & Luding, S. (2021). Stress based multi-contact model for discrete-element simulations. *Granular Matter*, 23(2), 1-14.
Taghizadeh, K., Berto, F., & Barati, E. (2012). Local strain energy density applied to martensitic steel plates weakened by U-notches under mixed mode loading. *Theoretical and applied fracture mechanics*, 59(1), 21-28.

Congress proceedings
Taghizadeh, K., Steeb, H., & Luding, S. (2021). Energy propagation in 1D granular soft-stiff chain. In EPJ Web of Conferences (Vol. 249, p. 02002). EDP Sciences.
Smit, H., Kievitsbosch, R., Magnanimo, V., Luding, S., & **Taghizadeh, K.** (2018). Influence of Irreversible Contacts on the Stiffness of Dense Polydisperse Packings. In Micro to MACRO Mathematical Modelling in Soil Mechanics (pp. 327-336). Birkhäuser, Cham.
Taghizadeh, K., Steeb, H., Magnanimo, V., & Luding, S. (2017). Elastic waves in particulate glass-rubber mixture: experimental and numerical investigations/studies. In EPJ Web of Conferences (Vol. 140, p. 12019). EDP Sciences.
Kievitsbosch, R., Smit, H., Magnanimo, V., Luding, S., & **Taghizadeh, K.** (2017). Influence of dry cohesion on the micro-and macro-mechanical properties of dense polydisperse powders & grains. In EPJ Web of Conferences (Vol. 140, p. 08016). EDP Sciences.
Taghizadeh, K., Kumar, N., Magnanimo, V., & Luding, S. (2015). Understanding the effects of inter-particle contact friction on the elastic moduli of granular materials. In IOP Conference Series: Earth and Environmental Science (Vol. 26, No. 1, p. 012008). IOP Publishing.

OTHER INFORMATION

Skills

Experimental techniques: X-ray Computed Tomography, Uniaxial & triaxial compression, Direct & ring shear, Rotating drum, Wave propagation

Image analysis and Post-processing: Paraview, Ovito, Dragonfly(ORS), Gnuplot

Numerical modelling: LIGGGHTS, LAMMMPS, Abaqus, Matlab, Catia, MercuryDPM

Programming languages: C, C++, Fortran, Python

Teaching and Mentoring Activities

- 2014–present, *Elasticity Theory*, University of Twente, NL.
  Role: Teaching assistant, course and exam designer
- 2014–2020, *Linear and nonlinear Finite Element Method,* University of Twente, NL
  Role: Lecturer
- 2014–present, *Granular Matter*, University of Twente, NL
  Role: Lecturer
- 2017–2019–2021, *Nonlinear materials mechanics,* Graduate school on Engineering Mechanics (EM) graduate school, NL

Role: Lecturer & computer programming trainer

- 2015–present, *Mentoring students*, University of Twente, NL & University of Stuttgart, DE
  Role: Thesis adviser of **three** Master students and **twelve** Bachelor students

Declarations given in the present curriculum must be considered released according to art. 46 and 47 of DPR n. 445/2000.

The present curriculum does not contain confidential and legal information according to art. 4, paragraph 1, points d) and e) of D.Lgs. 30.06.2003 n. 196.

Please note that CV WILL BE PUBLISHED on the University website and It is recommended that personal and sensitive data should not be included. This template is realized to satisfy the need of publication without personal and sensitive data.

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Place and date: Karlsruhe, Germany, 25.09.2023