

Dr. Ferenc Safranyik

Associate Professor

Eötvös Loránd University, Faculty of Informatics,
Savaria Institute of Technology
Károlyi Gáspár tér 4, Szombathely, H-9700, Hungary
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ACADEMIC EDUCATION

- 2017/02** **Ph.D. in Engineering Sciences: Agricultural Engineering Sciences**
Title of dissertation: *Gravitational and vibrational discharge of silos*
Szent István University, PhD School of Mechanical Engineering, Gödöllő, Hungary
- 2013/06** **M.Sc. in Mechanical Engineering: Specialization in technical developing**
Title of master thesis: *Modeling of gravitational discharge of silos*
Szent István University, Faculty of Mechanical Engineering, Gödöllő, Hungary
- 2012/12** **Professional translator in German and Hungarian language with mechanical engineering specialization**
Szent István University, Faculty of Economics and Social Sciences, Gödöllő, Hungary
- 2011/06** **B.Sc. in Mechanical Engineering: Specialization in machine manufacturing**
Title of bachelor thesis: *Design of forging die*
Szent István University, Faculty of Mechanical Engineering, Gödöllő, Hungary

PROFESSIONAL CAREER

- 2019/09 –** **Associate Professor**
Eötvös Loránd University, Faculty of Informatics, Savaria Institute of Technology
- 2018/01 – 2019/09** **Assistant Professor**
Eötvös Loránd University, Faculty of Informatics, Savaria Institute of Technology
- 2016 – 2018/01** **Assistant Lecturer**
Szent István University, Faculty of Mechanical Engineering:
Institute of Mechanics and Machinery, Department of Mechanics and Technical Drawing
- 2017 – 2018** **Research Fellow**
NARIC Institute of Agricultural Engineering, Gödöllő, Hungary
- 2013 – 2016** **PhD scholar, researcher**
Szent István University, Faculty of Mechanical Engineering:
Institute of Mechanics and Machinery, Department of Mechanics and Technical Drawing
- 2013 – 2016** **Assistant Research Fellow**
NARIC Institute of Agricultural Engineering, Gödöllő, Hungary
- 2011 – 2013** **Teaching assistant**
Szent István University, Faculty of Mechanical Engineering:
Institute of Mechanics and Machinery, Department of Mechanics and Technical Drawing

RESEARCH FIELDS

- **Mechanics of granular materials:** Modeling of granular flow, numerical modeling of granular motions in industrial equipment, calibration of discrete element models, determination of micromechanical parameters of granular assemblies.
- **Mechanics of friction:** Examination of solid – granular friction, evaluation of effect of temperature- and sliding velocity fluctuation.

EDUCATION ACTIVITIES

Coordinator and lecturer

- Subject (BSc): Technical drawing, CAD 1, CAD 2, Basics of Finite Element Modeling, Elasticity, Finite Element Method..

Lecturer

- Subject (BSc): Statics, Strength of Material, Dynamics, Basics of Finite Element Modeling.
- Subject (MSc) Elasticity, Engineering vibrations, Finite Element Modeling.
- Subject (PhD): General Research Methodology.

LANGUAGE SKILLS

- German: Advanced level (professional translator with mechanical engineering specialization, C1)
- English: Intermediate level (B1)
- Hungarian: Native (C2)

SOFTWARE SKILLS

- CAD software: AutoCad, Autodesk Inventor, Catia, Creo, Solid Edge, Solid Works.
- VEM software: Ansys.
- DEM software: EDEM, YADE.
- Programming languages: Visual Basic, Python, Java.
- Other: MS Office, LaTeX, Wolfram Mathematica, Mathcad, MATLAB.

SCIENTIFIC ACTIVITIES AND MEMBERSHIPS

Ph.D. reviewer, committee member

- Attila Varga: Analysis of granular motion in silo dryers

Scientific reviewer

- IEEE Access international scientific journal (2018 IF: 4,098).
- 33rd EUROPEAN INTERNATIONAL ECMS Conference on Modelling and Simulation.
- 32nd EUROPEAN INTERNATIONAL ECMS Conference on Modelling and Simulation.
- Dániel Horváth, Dávid Kristóf Módi: Modeling of granular assembly in dynamic equipment, Budapest University of Technology and Economics, Scientific Students' Associations Conference, 2018.

Membership

- From 2015: Hungarian Chambers of Engineers

- From 2019: Hungarian Academy of Sciences, General Assembly Member, Section of Agricultural Sciences, Committee on Agricultural Engineering

SCIENTIFIC ACHIEVEMENTS

- 2016. Karai János Pre-Doctoral Fellowship,
- 2013. Pro Scientia Gold Medal,
- 2013. XXXI. National Scientific Students' Associations Conference, 1st place,
- 2013. Excellent study award,
- 2012. Szent István Fellowship,
- 2012. Szent István University, Scientific Students' Associations Conference, 1st place,
- 2012. Fellowship granted by the Republic,
- 2012. Excellent study award,
- 2012. Szent István University, Scientific Students' Associations Conference, 3rd place,
- 2011. Fellowship granted by the Republic,
- 2011. Excellent study award,
- 2011. Szent István University, Scientific Students' Associations Conference, special award,
- 2010. Fellowship granted by the Republic,
- 2010. Excellent study award,
- 2009. Fellowship granted by the Republic,
- 2009. Excellent study award,
- 2008. Fellowship granted by the Republic,
- 2008. Excellent study award,

PUBLICATIONS

Journal papers with impact factor:

1. F. Safranyik, B.M. Csizmadia, A. Hegedus, I. Keppler: Optimal oscillation parameters of vibrating screend, JOURNAL OF MECHANICAL SCIENCE AND TECHNOLOGY 33:(5) pp. 2011-2017. (2019)
2. Oldal I, Safranyik F, Keppler I.: Reducing computational time of cohesionless discrete simulations based on particle clusters, ENGINEERING COMPUTATIONS 34:(2) pp. 648-663. (2017)
3. Keppler I, Safranyik F, Oldal I.: Shear test as calibration experiment for DEM simulations: a sensitivity study, ENGINEERING COMPUTATIONS 33:(3) pp. 742-758. (2016)
4. Oldal I, Safranyik F: Extension of silo discharge model based on discrete element method, JOURNAL OF MECHANICAL SCIENCE AND TECHNOLOGY 29:(9) pp. 3789-3796. (2015)

Journal papers:

5. Ayman A.A. Ibrahim, M. Jolánkai, A. Csúr-Varga, F. Safranyik: Applying Infrared Techniques as a Nondestructive Method To Assess Wheat Grain Hardness, International Journal of Science and Qualitative Analysis 4(3), pp. 100-107, (2018)

6. El-Hagerey M E , El-Sabbagh B.A. , Safranyik F.: Mathematical model of engineering and hydraulic design factors of innovative pressure compensating pottery dipper, *European Journal of Academic Essays* 3:(1) pp. 7-20. (2016)
7. Keppler I, Oldal I, Safranyik F., Bablena A.: Calibration of discrete element models, *Mechanical Engineering Letters: R and D* 14, pp. 140-151. (2016)
8. Safranyik F.: A diszkrét elemes módszer alkalmazása lengőrosták hatékonyságának vizsgálatára, *GÉP* 67:(4) pp. 44-47. (2016)
9. Safranyik F, Csátár A, Varga A.: Experimental method for examination of state dependent friction, *PROGRESS IN AGRICULTURAL ENGINEERING SCIENCES* 11:(1) pp. 29-42. (2015) (ISBN 1787-0321)
10. Safranyik F, Oldal I, Csizmadia B.: Gerjesztett silók kísérleti elemzése, *MEZŐGAZDASÁGI TECHNIKA* LVI:(3) pp. 2-5. (2015)
11. Safranyik F, Csizmadia B.: Kalibrációs módszer szemcsés halmazok mikromechanikai jellemzőinek meghatározásához, *MŰSZAKI TUDOMÁNYOS KÖZLEMÉNYEK* 3: pp. 267-271. (2015)
12. Csátár A, Safranyik F: Examining The Velocity- and Time-Dependent Friction in Case of Steel and Polyamide *HUNGARIAN AGRICULTURAL ENGINEERING* 26: pp. 20-24. (2014)
13. Oldal I, Keppler I, Bablena A, Safranyik F, Varga A.: On the Discrete Element Modeling of Agricultural Granular Materials, *MECHANICAL ENGINEERING LETTERS: R AND D: RESEARCH AND DEVELOPMENT* 11: pp. 8-17. (2014)
14. Csátár A., Safranyik F., Bércesi G.: A new direct shear testing apparatus for the examination of the velocity- and time-dependent friction, *Hungarian Agricultural Engineering*, Vol. 25, pp. 54-58, ISSN 0864-7410, (2013)
15. Safranyik F., Oldal I.: 3D DEM model of silo discharge, *Poljoprivredna tehnika*, Vol. 38 (2), pp. 23-34, ISSN 0554-5587, (2013)

Conference proceedings:

16. F. Safranyik, I. Keppler.: Automatic Calibration of Discrete Element Models, In: L. Nolle, A. Burger, C. Tolen, J. Wener, J. Wellhausen (szerk.): 32nd European Conference on Modelling and Simulations, ECMS 2018. Wilhelmshaven, Germany, 2018. 05. 22. – 2018. 05. 25, *PROCEEDINGS*, 2018. pp. 418-420. (ISBN 978-0-9932440-6-3)
17. Safranyik F, Keppler I, Bablena A.: DEM Calibration: A Complex Optimization Problem, In: Juan E Guerrero (szerk.) 2017 International Conference on Control, Artificial Intelligence, Robotics & Optimization: ICCAIRO 2017. Konferencia helye, ideje: Prága, Csehország, 2017.05.20 Cabrerizos: IEEE Computer Society, 2017. pp. 198-202. (ISBN:978-1-5090-6536-3)
18. Csátár A, Safranyik F, Varga A.: Development of experimental apparatus for examination of velocity dependent friction, Konferencia helye, ideje: Gödöllő, Magyarország, 2015.10.12-2015.10.15. Gödöllő: 2015. 5 p. CD-ROM Proceedings of the Synergy and Technical Development International Conference (ISBN:978-963-269-506-8)
19. Safranyik F, Oldal I, Csizmadia B.: Effect of vibration on silo flow of cohesionless granular materials, Konferencia helye, ideje: Starý Smokovec, Szlovákia, 2015.09.20-2015.09.25. 2015. 32nd Danubia Adria Symposium on Advances in Experimental Mechanics (ISBN:978-80-554-1094-4)
20. Safranyik F.: Determination of micromechanical parameters of granules based on standard shear test, Konferencia helye, ideje: Gödöllő, Magyarország, 2015.10.12-2015.10.15. Gödöllő: 2015. 5 p. CD-ROM Proceedings of the Synergy and Technical Development International Conference (ISBN:978-963-269-506-8)
21. Safranyik F, Oldal I, Csizmadia B.: Gerjesztett silók kifolyásának modellezési lehetőségei, Konferencia helye, ideje: Kolozsvár, Románia, 2014.03.20-2014.03.21. 2014. XIX. Fiatal Műszakiak Tudományos Ülésszaka
22. Safranyik F, Oldal I.: Numerical modeling of silo discharge, Konferencia helye, ideje: Nitra, Szlovákia, 2013 Nitra: 2013. 6 p. Recent Advances in Agriculture, Mechanical Engineering and Waste Policy, International Scientific Conference (ISBN:978-80-552-1014-8)

23. Safranyik F, Oldal I.: A silóürítés gyakorlatban alkalmazható diszkrét elemes modellje, Konferencia helye, ideje: Kolozsvár, Románia, 2013.03.21-2013.03.22. 2013. 4 p. XVIII. Fiatal Műszakiak Tudományos Ülésszaka
24. Safranyik F, Oldal I.: Discrete element model of particle outflow, Konferencia helye, ideje: Gödöllő, Magyarország, 2013.10.13-2013.10.18. Gödöllő: 2013. 6 p. CD-ROM Proceedings of the Synergy and Technical Development International Conference (ISBN:978-963-269-359-0)
25. Safranyik F, Oldal I.: Finite element analysis of a forging die with dynamic marginal conditions, Konferencia helye, ideje: Timisoara, Románia, 2015.05.07-2015.05.13. Timisoara (Temesvár):2012. 7 p. VII., Conferentia Internationala, Zilele Tehnice Studentesti, Editia XVI

Book:

26. Oldal István, Safranyik Ferenc: Rugalmas testek mechanikája – példatár, Magyarország, Szombathely, Eötvös Loránd Tudományegyetem, Savaria Műszaki Intézet, 2019. 144 p. (ISBN: 978-9-634-89077-5)
27. Ferenc Safranyik, Istvan Keppler, Istvan Oldal Techniques and algorithms to promote industrial application of DEM, Saarbrücken: Lambert Academic Publishing (LAP), 2017. 60 p. (ISBN:978-3-659-56698-1)
28. Oldal István, Safranyik Ferenc: Szilárdságtan gyakorlatok: (2. kiadás) 86 p; Magyarország, Szent István Egyetem Kiadó Nonprofit Kft. (2016)