

## ANDREY K. GUBER

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### EDUCATION AND TRAINING

M.V. Lomonosov Moscow State University, Russia, Soil Science, Ph.D., 1994.

Moscow Land Reclamation Institute, Russia, Hydraulic Engineering, M.Sc., 1982.

### RESEARCH AND PROFESSIONAL EXPERIENCE

1982 – 1991: Junior Research Scientist, Research Scientist, Moscow Land Reclamation Institute, later Moscow State University of Environmental Engineering, Moscow, Russia.

1991- 2004: Research Scientist, Senior Research Scientist, M.V. Lomonosov Moscow State University, Soil Science Department, Moscow, Russia

2004 – 2007: Postdoctoral Scholar in the University of California, Department of Environmental Science, Riverside CA.

2007 – 2011: Soil Scientist, Environmental Microbial and Food Safety Laboratory, USDA-ARS-BA-ANRI, Beltsville MD

2011- present: Assistant Professor, Department of Plant, Crop and Soil Science, Michigan State University, East Lansing, MI.

### SYNERGISTIC ACTIVITIES

- Main area of expertise: Soil science with the emphasis on soil physics, soil physical chemistry, and modeling water flow, chemical and microbial transport in soils. Current research interests: Role of pore heterogeneity in soil carbon and nitrogen fluxes at microscale.
- Authored and co-authored over 100 peer-reviewed journal articles, book chapters, conference proceedings, and abstracts.

### Teaching:

- Developed and taught a 2 credits graduate course CSS 892B Sec 001: "Modeling Unsaturated Water Flow and Contaminant Transport in Soils" at Michigan State University, U.S.A. (Spring 2014; 8 students and 3 attendees).
- Developed and taught graduate course "Mathematical modeling of chemical transport in soils" at Moscow State University (Russia). The course focused on fundamentals of soil physical and chemical processes and applications in environmental hydrology (fall every year 1991-2000; 15-20 students).
- Led summer field soil science course for undergraduate and graduate students of Moscow State University, Russia (summer every year 1992-2001; 8-10 students).
- Developed and taught course "Basics of computer use in soil science" for faculty and staff of Moscow State University, Russia (fall and spring 1992; 20-25 attendees).

### **Graduate and Ph.D. student supervising:**

As part of my graduate student advising and scholarly activities, I was fortunate to serve as an advisor to many outstanding individuals.

Student names, degrees, dates, and titles of theses and dissertations that I supervised:

**Name:** Jessica Fry  
**Degree:** Ph.D. Michigan State University, U.S.A. (August 2019)  
**Title:** Experimental and modeling study of plant growth, and water content and nitrogen dynamics on topographically varied terrain under corn-soybean-cereal rye rotation

**Name:** Egor V. Levkovsky  
**Degree:** Ph.D. Moscow State University, Russia (November 2008)  
**Title:** Characteristics of porosity in Grey Forest soil of Vladimirskoey Opolie with the second humus horizon.

**Name:** Natalia A. Perekrestova  
**Degree:** Ph.D. Moscow State University, Russia (October 2002)  
**Title:** Spatial patterns of water content dynamics in Grey Forest soils obtained in long-term experiment

**Name:** Marina V. Nikulina  
**Degree:** Ph.D. Moscow State University, Russia (October 2001)  
**Title:** Experimental information and accuracy assessment for water transport model in macroporous soil.

**Name:** Van Itsuan  
**Degree:** Ph.D. Moscow State University, Russia (May 1996)  
**Title:** Models of water transport in soils: experimental information and application.

**Name:** Egor V. Levkovsky  
**Degree:** M.S. Moscow State University, Russia (May 2003)  
**Title:** Characteristics of pore space structure in Grey Forest soil of Vladimirskoey Opolie with the second humus horizon.

**Name:** Anatoly B. Petrasiuk  
**Degree:** M.S. Moscow State University, Russia (May 2001)  
**Title:** Impact of heavy agricultural machinery on changes of physical properties in Grey Forest.

**Name:** Andrey S. Kaplunov  
**Degree:** M.S. Moscow State University, Russia (May 1999)  
**Title:** Study of daily temperature dynamics and evaluation the coefficient of temperature conductivity for Sody-Podzolic soils.

**Name:** Marina V. Nikulina  
**Degree:** M.S. Moscow State University, Russia (May 1997)  
**Title:** Application the electrical and dielectrical methods for water regime studies in soils.

**Name:** Kirill A. Osipov  
**Degree:** M.S. Moscow State University, Russia (May 1995)  
**Title:** Evaluation of water infiltration into the soil for water erosion models.

**Name:** Alexander B. Arutiunov  
**Degree:** M.S. Moscow State University, Russia (May 1993)  
**Title:** Basic hydrophysical functions of Typical and Southern Chernozem soils.

### **Membership in Professional Societies**

Russian Dokuchayev Soil Science Society,  
American Geophysical Union (AGU),  
Soil Science Society of America (SSSA)  
British Society of Soil Science

### **Distinctions**

Honors and Awards:

1997 Medal from the Government of the Russian Federation ‘In memory of 850 years of Moscow’

1995 Academic status ‘Senior Researcher’

Fellowships:

Kiel, Germany, 1999 granted by the “SC-DLO” (Dienst Landbouwkunding Onderzoek, Staring Centrum), the Netherlands

Beltsville, USA, 2001 granted by the ARS-USDA.

### **Grant awards:**

- USDA-AFRI “Micro-scale biophysical frameworks promoting C sequestration in cover crop-based systems” (2021-2025) - \$750,000 (PI).
- NSF-DEB “Role of transport processes in formation of optimal microbial habitats and the root-microbe-soil carbon accrual continuum” (2019-2022) - \$625,000 (co-PI).
- USDA-NIFA “A new perspective for plant diversity and carbon sequestration: interaction between physical micro-environments and microorganisms” (2019-2022) - \$499,999 (co-PI).
- USDA-NIFA “Transition to organic in row-crop systems: enhancing sustainability in topographically diverse Midwest landscapes” (2018-2021) - \$499,999 (co-PI).
- MSU-DFI “Modeling performance of cover crop mixtures during transition to organic management in row-crop system” (2017) - \$24,900 (PI).
- USDA-NIFA “Increasing sustainability of corn-based systems in topographically diverse landscapes by optimizing cover crop performance under future climate extremes” (2017-2019) - \$82,070 (PI).
- CRDF Global “2016 U.S. - Ukraine Agricultural Research Competition” (2017-2019) - \$44,971(co-PI).
- Mendota Agri Products “Application of recycling water for irrigation” (2016) - \$7,147 (PI).
- NSF “Micro-Scale Mechanisms of N<sub>2</sub>O Production in Soil” (2016-2019) - \$549,999 (co-PI).
- The Nature Conservancy “Estimate Impacts of Tile Drainage on Recharge in the Saginaw Bay Watershed” (2015) - \$20,000 (PI).
- USAID “Pakistan Soil Fertility and Soil Health Improvement Program” (2015-2016) - \$118,223 (co-PI).

- USB “Combing integrated pest management with climate change, mitigation, and adaptation in soybean-corn systems” (2013-2016) - \$185,214 (PI).
- USDA-NIFA “Micro-scale mechanisms of N<sub>2</sub>O production-How can they improve large scale emission predictions” (2013-2016) - \$477,881 (co-PI).
- MSU-ESPP “Water Initiative Research Grants, Multimodeling framework for predicting fate and transport of pathogens originated from wildlife and livestock interactions in fragmented agriculture-forest ecosystems” (2012-2015) - \$198,900 (PI).

### **Professional Service:**

- Scientific Council on evaluation and granting doctoral degrees in biological sciences at Soil Science Faculty of M.V. Lomonosov Moscow State University, Russia (1998-2003).
- Peer review service for Elsevier, Springer and Wiley publishing houses: *Advances in Water Resources* (AWR), *Agricultural Water Management* (AWM), *Agronomy* – MDPI, *AGU Books* – Wiley, *Canadian Journal of Soil Science* (CJSS), *Chemosphere, Ecosystems and Environment*, *Environmental Modelling and Software* (EMS), *Hydrological Processes*, *Journal of Arid Environments* (JAE), *Journal of Environmental Quality* (JEQ), *Journal of Hydrology*, *Land Degradation & Development* (LDD), *Science of the Total Environment* (STE), *Scientific Reports* – Nature, *Soil & Tillage Research*, *Soil Biology and Biochemistry* (SBB), *Soil Science*, *Soil Science Society of America Journal* (SSSAJ), *Vadose Zone Journal* (VZJ), *Water Resources Research* (WRR), *Geoderma*, *Journal of Porous Media* (JPM), and *Transport in Porous Media* (TIPM).
- Guest-editor of the Special issue of the *Ecological Complexity* Journal on fractals in environmental systems.
- Associate Editor for the *Journal of Environmental Quality* (2010-2012)
- Member of SBIR-USDA panel (2012 - 2014)
- A graduate committee member to M.S. and PhD student from Dept. Civil Engineering, and Dept. Ag. Engineering at MSU (2014-2016).
- A graduate committee member to a PhD student from Gwangju Institute of Science and Technology, Korea (2016).
- A graduate committee member to two PhD students from Dept. Plant, Soil and Microbial Sciences MSU (2019-2021)
- Ad hoc review service to: Czech Science Foundation (GACR), USDA Small Business Innovation Research Program (SBIR) Phase II panel, Biotechnology and UK Biological Sciences Research Council (BBSRC), Austrian Science Fund (FWF), US-Israel Agricultural Research & Development Fund (BARD), NSF Faculty Early Career Development Program (CAREER), and German Academic Exchange Service (DAAD).
- External evaluator of 5 PhD dissertation (Pakistan).
- External evaluator of USDA-ARS 5-year research project plan (2020).
- Organized ICARDA workshop "Soil fertility and soil health", Islamabad, Pakistan March 2-3, 2016.
- Chair of Interdivision session "Linking Microscale Processes in Soil Pores to Soil Properties" to take place at Soil Science Society Meeting, Salt Lake City, Nov. 7-10, 2021.
- Consulting provided Pargana® (2014-2016) and Mendota Agri-Products, Inc. (2016).
- Trainings provided domestic and international students.

## Publications

- Number of refereed papers and book chapters	127
- Number of presentations at scientific meetings:	147
- Google Scholar <i>h</i> -index:	30

## List of publications

### *Book Chapters and Scientific reports:*

1. Kravchenko A., A. Guber. 2021. Imaging soil structure to measure soil functions and soil health with X-ray computed micro-tomography. pp. 111-138. In Otten W (Ed.). Advances in measuring soil health. Burleigh Dodds series in agricultural science 92, Dublin, Ireland
2. Guber, A.K., Y.A. Pachepsky, A.M. Yakirevich, D.R. Shelton, A.M. Sadeghi, D.C. Goodrich, C. L. Unkrich. 2012. STWIR, a Microorganism Transport with Infiltration and Runoff add-on Module for the KINEROS2 Runoff and Erosion Model, Documentation and User Manual: v.2.04 (<https://www.msu.edu/~akguber/software.html>).
3. Pachepsky, Y.A., Guber, A.K., Yakirevich, A.M., Pan, F., Gish, T.J., Kouznetsov, M.Y., Van Genuchten, M. T., Cady, R.E. 2015. Integrating Model Abstraction into Monitoring Strategies. Nuclear Regulatory Commission Publication NUREG/CR. U.S. Nuclear Regulatory Commission Office of Nuclear Regulatory Research, Washington, DC.
4. Guber, A. K., Pachepsky, Y. A. 2010. Multimodeling with Pedotransfer Functions. Documentation and User Manual for PTF Calculator (CalcPTF). United States Department of Agriculture Technical Bulletin. (<http://www.ars.usda.gov/ba/anri/emfsl/code>)
5. Guber, A. K., Pachepsky, Y. A., Yakirevich, A. M., Shelton, D. R., Sadeghi, A.M., Goodrich D.C., Unkrich, C.L. 2010. STWIR, a microorganism transport with infiltration and runoff add-on module for the KINEROS2 runoff and erosion model: documentation and user manual. United States Department of Agriculture Technical Bulletin. (<http://www.ars.usda.gov/ba/anri/emfsl/code>)
6. Pachepsky, Y. A., Gish, T. J., Guber, A. K., Yakirevich, A. M., Kuznetsov, M. Y., Nicholson, T. J., Cady, R. E. Application of model abstraction techniques to simulate transport in soils. Nuclear Regulatory Commission Publication NUREG/CR-7026. U.S. Nuclear Regulatory Commission Office of Nuclear Regulatory Research, Washington, DC.
7. Guber, A.K. 2007. Measurement of soil saturated hydraulic conductivity: The method of constant pressure tubes. pp. 256-258. In Shein, E.V. and L.O. Karpachevsky (Eds.) Theory of Methods of Soil Physics. “Grif and Co” Publisher House, Tula, Russia.
8. Guber, A.K. 2007. Calculation of solute transport parameters from the breakthrough experimental data using solute transport models. Pp. 363-372. In Shein, E.V. and L.O. Karpachevsky (Eds.) Theory of Methods of Soil Physics. “Grif and Co” Publisher House, Tula, Russia.
9. Guber, A.K. 2007. Solute breakthrough experiment. 2007. pp. 345-360. In Shein, E.V. and L.O. Karpachevsky (Eds.) Theory of Methods of Soil Physics. “Grif and Co” Publisher House, Tula, Russia

10. Tymbaev, V.G., A.V. Dembovetsky, A.K. Guber. 2007. Assessment of soil hydraulic properties using Pedotransfer Functions. pp. 304-338. In Shein, E.V. and L.O. Karpachevsky (Eds.) Theory of Methods of Soil Physics. "Grif and Co" Publisher House, Tula, Russia.
11. Guber, A.K. 2007. Unsaturated soil hydraulic conductivity: The field infiltrometer method. pp. 266-270. In Shein, E.V. and L.O. Karpachevsky (Eds.) Theory of Methods of Soil Physics. "Grif and Co" Publisher House, Tula, Russia.
12. Shein E. V., A. K. Guber, A. V. Dembovetsky. 2004. Key soil water contents. In: Y. Pachepsky and W. J. Rawls (Eds.), "Development of Pedotransfer Functions in Soil Hydrology", 30, Amsterdam, Elsevier : 241-249.
13. Guber A. K., Y. A. Pachepsky. 2004. Soil aggregates and water retention. In: Y. Pachepsky and W. J. Rawls (Eds.), "Development of Pedotransfer Functions in Soil Hydrology", 30, Amsterdam, Elsevier: 143-151.
14. Guber A. K., T. A. Arhangel'skaya. 2001. An evidence of a special hydrothermal regime in Grey Forest soil with the second humus horizon. In: "Scale effects in soil studies". Moscow, Moscow University Publishing House, pp. 186-195. (In Rus).
15. Smagin A. V., N. B. Sadovnikova, M. B. Smagina, M. B. Glagolev, E. M. Shevchenko, D. D. Khaidapova, A. K. Guber. 2001. Modelling dynamics of organic matter in soils. Moscow, Moscow University Publishing House, 120 pp. (In Rus).
16. Guber A K. 2001. Methods of hydraulic properties evaluation using soil texture (pedotransfer functions). In: E. V. Shein (Ed.) "Field and laboratory methods to study physical properties and regimes in soils". Moscow, Moscow University Publishing House, pp.69-78. (In Rus).
17. Guber A K. 2001. Measurement of water conductivity in soils. In: E. V. Shein (Ed.) "Field and laboratory methods to study physical properties and regimes in soils". Moscow, Moscow University Publishing House, pp.79-102. (In Rus).
18. Guber A K., E. V. Shein. 2001. Evaluation of hydrodynamic dispersion using breakthrough curve for chloride ion. In: E. V. Shein (Ed.) "Field and laboratory methods to study physical properties and regimes in soils". Moscow, Moscow University Publishing House, pp.103-115. (In Rus).
19. Guber A K. 2001. Calculations of soil hydro-chemical parameters using breakthrough curves. In: E. V. Shein (Ed.) "Field and laboratory methods to study physical properties and regimes in soils". Moscow, Moscow University Publishing House, pp.128-138. (In Rus).
20. Guber A. K. 2000. Water movement forecasting model in soils under compaction. In: R. Horn, J.J.H. van den Akker and J. Arvidsson (Eds) "Subsoil compaction: distribution, processes and consequences". Advances in Geocology 32, Reiskirchen, Catena Verlag, pp. 97-106.
21. Guber A. K., N. A. Perekrestova\*, M. V. Prokhorov. 2000. Seasonal water content dynamic of Grey forest soils. In: Nenaydenko (Ed.) "Improving agricultural production technology in the Upper Volga region", v.2, pp. 29-37. (in Rus).
22. Shein E. V., A. K. Guber, A. V. Dembovetsky. 1997. Calculating hydraulic properties of unsaturated soils using hydrological constants and Atterberg limits. In: van Genuchten, M. Th, F. J. Leij, and L. Wu ( Eds.), "Characterization and Measurement of the Hydraulic Properties of Unsaturated Porous Media". Proceedings of the International Workshop. Riverside, California, October 22-24, 1997. University of California, Riverside. pp. 1005-1010.
23. Zeiliguer A. M., A. K. Guber, V. M. Sinukov, R. B. Shaidullin. 1990. Design and data processing of field experiment on water flow. Trans. NPO Ugmeliorsia, Novotcherkassk, pp. 122-129. (In Rus).

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\* PhD student

***Journal Articles:***

1. Kim, K., J. Gil, N.E. Ostrom, H. Gandhi, M.S. Oerther, Y. Kuzyakov, A.K. Guber, A.N. Kravchenko. 2022. Soil pore architecture and rhizosphere legacy define N<sub>2</sub>O production in root detritosphere. *Soil Biology and Biochemistry* 166: 108565.
2. Zheng, H., A.K. Guber, Y. Kuzyakov, W. Zhang, A.N. Kravchenko. 2022. Plant species and plant neighbor identity affect associations between plant assimilated C inputs and soil pores. *Geoderma* 4007: 115565.
3. Khosrozadeh, S., A. Guber, A. Kravchenko, N. Ghaderia, E. Blagodatskaya. 2021. Soil oxidoreductase zymography: visualizing spatial distributions of peroxidase and phenol oxidase activities at the root-soil interface. *Soil Biology and Biochemistry* (accepted).
4. Guber, A., E. Blagodatskaya, A. Kravchenko. 2021. Whether enzymes are transported in soil by water fluxes? *Soil Biology and Biochemistry* (in review).
5. Guber, A., A. Kravchenko. Combining membrane soil zymography with microplate kinetic assay to characterize spatial distribution of  $\beta$ -glucosidase activity in soils. 2021. *Soil Biology and Biochemistry* (in review).
6. Juyal, A., A. Guber, M. Oerther, M. Quigley, A. Kravchenko. 2021. Pore architecture and particulate organic matter in soils under monoculture switchgrass and restored prairie in contrasting topography. *Scientific reports* 11: 21998. <https://doi.org/10.1038/s41598-021-01533-7>.
7. Guber, A.K., E. Blagodatskaya, A. Juyak, B.S. Rasavi, Y. Kuzyakov, and A.N. Kravchenko. 2021. Time-lapse approach to correct deficiencies of 2D soil zymography. *Soil Biology and Biochemistry* 157, 108225. <https://doi.org/10.1016/j.soilbio.2021.108225>.
8. Kravchenko, A.N., H. Zheng, Y. Kuzyakov, G.P. Robertson, A.K. Guber. 2021. Belowground interplant carbon transfer promotes soil carbon gains in diverse plant communities. *Soil Biology and Biochemistry* 159, 1082. <https://doi.org/10.1016/j.soilbio.2021.108297>.
9. Kim, K., T. Kutlu, A.N. Kravchenko, A.K. Guber. 2021. Dynamics of N<sub>2</sub>O in vicinity of plant residues: a microsensor approach. *Plant and Soil* <https://doi.org/10.1007/s11104-021-04871-7>.
10. Kravchenko, A.N., A.K. Guber, B. S. Rasavi, J. Koestel, M.Y. Quigley, G. P. Robertson, and Y. Kuzyakov. 2020. Reply to: "Variables in the effect of land use on soil extrapore enzymatic activity and carbon stabilization" by Glenn (2020). *Nature Communications* 11:6427 [doi.org/10.1038/s41467-020-19901-8](https://doi.org/10.1038/s41467-020-19901-8).
11. Guber, A., T. Kutlu, M. Rivers, A. Kravchenko. 2020. Mass-balance approach to quantify water distribution in soils based on X-ray computed tomography images. *Eur J Soil Sci.*, <https://doi.org/10.1111/ejss.13005>.
12. Kravchenko, A., A. Guber, A. Gunina, M. Dippold, Ya, Kuzyakov. 2020. Pore-scale view of microbial turnover: Combining <sup>14</sup>C imaging, mCT and zymography after adding soluble carbon to soil pores of specific sizes. *Eur J Soil Sci.*, <https://doi.org/10.1111/ejss.13001>.
13. Kim, K.\*, A.K. Guber, M.L. Rivers, A.N. Kravchenko, 2020. Contribution of decomposing plant roots to N<sub>2</sub>O emissions by water absorption. *Geoderma* 375: [doi.org/10.1016/j.geoderma.2020.114506](https://doi.org/10.1016/j.geoderma.2020.114506).
14. Zheng, H., Kim, K. \*, Kravchenko, A., Rivers, M., Guber, A. 2020. Testing Os staining approach for visualizing soil organic matter patterns in intact samples via X-ray dual-Energy tomography scanning. *Environmental Science & Technology* 2020 54 (14), 8980-8989.

15. Bilyera N, Kuzyakova, I., Guber, A., Razavi B.S., Kuzyakov, Ya. 2020. How "hot" are hotspots: Statistically localizing the high-activity areas on soil and rhizosphere images. *Rhizosphere* 16, 100259. <https://doi.org/10.1016/j.rhisph.2020.100259>.
16. Fry, J.\*, A.K. Guber. 2020. Temporal stability of field-scale patterns in soil water content across topographically diverse agricultural landscapes. *J. Hygrology* 580: 124260.
17. Guber, A.K., Kravchenko, A.N., Razavi, B.S., Blagodatskaya, E., Kuzyakov, Y. 2019. Calibration of 2-D soil zymography for correct analysis of enzyme distribution. *European Journal of Soil Science* 70(4): 715-726.
18. Roy, P.C., Guber, A., Abouali, Deb, K., Smucker, A.J.M. 2019. Simulation optimization of water usage and crop yield using precision irrigation. *Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)*. 11411 LNCS: 695-706.
19. Kravchenko, A.N., A.K. Guber, B. S. Rasavi, J. Koestel, M.Y. Quigley, G. P. Robertson, and Y. Kuzyakov. 2019. Microbial spatial footprint as a driver of soil carbon stabilization. *Nature Communications* doi.org/10.1038/s41467-019-11057-4.
20. Kravchenko, A.N., A.K. Guber, B.S.Razavi, J.Koestel, E.V. Blagodatskaya, Y.Kuzyakov. 2019. Spatial patterns of extracellular enzymes: combining X-ray computed micro-tomography and 2D zymography. *Soil Biol. Biochem.*, 135: 411-419.
21. Razavi, B.S., X. Zhang, N. Bilyera, A. Guber, M. Zarebanadkouki. 2019. Soil zymography: Simple and reliable? Review of current knowledge and suggested optimization of method. *Rhizosphere* 11, <https://doi.org/10.1016/j.rhisph.2019.100161>
22. Roy, P.C., Guber, A., Abouali, Deb, K., Smucker, A.J.M. 2019. Crop yield simulation optimization using precision irrigation and subsurface water retention technology *Environmental Modelling and Software* 119: 433-444.
23. Ma, X., Mason-Jones, K., Liu, Y., Guber, A.K., Dippold, M.A., Razavi, B.S. 2019. Coupling zymography with pH mapping reveals a shift in lupine phosphorus acquisition strategy driven by cluster root. *Soil Biol. Biochem.*, 135, pp. 420-428.
24. Guber A., Kravchenko A., Razavi B., Uteau D., Peth S., Blagodatskaya E., Kuzyakov Y. 2018. Quantitative soil zymography: Mechanisms, processes of substrate and enzyme diffusion in porous media. *Soil Biol. Biochem.*, 127: 156-167.
25. Kravchenko, A.N., Guber, A.K., Quigley, M.Y., Koestel, J., Gandhi, H., Ostrom, N.E. 2018. X-ray computed tomography to predict soil N<sub>2</sub>O production via bacterial denitrification and N<sub>2</sub>O emission in contrasting bioenergy cropping systems. *GCB Bioenergy* 10(11): 894-909.
26. Quigley, M.Y., Negassa, W.C., Guber, A.K., Rivers, M.L., Kravchenko, A.N. 2018. Influence of pore characteristics on the fate and distribution of newly added carbon. *Frontiers in Environmental Science* 6(JUN), 51.
27. Kravchenko, A.N., Fry, J.E.\*, Guber, A.K. 2018. Water absorption capacity of soil-incorporated plant leaves can affect N<sub>2</sub>O emissions and soil inorganic N concentrations. *Soil Biology and Biochemistry* 121: 113-119.
28. Stocker M., Yakirevich A., Guber A., Martinez G., Blaustein R., Whelan G., Goodrich D., Shelton D., Pachepsky Y. 2018. Functional Evaluation of Three Manure-Borne Indicator Bacteria Release Models with Multiyear Field Experiment Data, *Water, Air & Soil Pollution* 229:181 <https://doi-org.proxy1.cl.msu.edu/10.1007/s11270-018-3807-0>.



29. Kutlu, T., Guber, A.K., Rivers, M.L., Kravchenko, A.N. 2018. Moisture absorption by plant residue in soil. *Geoderma*, 316: 47-55.
30. Bhalsod, G.D., Chuang, Y.-H., Jeon, S., Gui, W., Li, H., Ryser, E.T., Guber, A.K., Zhang, W. 2018. Uptake and Accumulation of Pharmaceuticals in Overhead- and Surface-Irrigated Greenhouse Lettuce. *J. Agric. Food Chem.*, 66: 822–830. DOI: 10.1021/acs.jafc.7b04355
31. Kravchenko A.N., Guber A.K. Soil pores and their contributions to soil carbon processes. 2017. *Geoderma*, 287: 31-39.
32. Fry J.\*, Guber A.K., Ladoni M., Munoz J.D., Kravchenko A.N. 2017. The effect of up-scaling soil properties and model parameters on predictive accuracy of DSSAT crop simulation model under variable weather conditions. *Geoderma*, 316: 105-115.
33. Kravchenko A.N., Toosi E.R., Guber A.K., Ostrom N.E., Yu J., Azeem K., Rivers M. L., Robertson G.P. 2017. Hotspots of soil N<sub>2</sub>O emission enhanced through water absorption by plant residue. *Nature Geoscience*, DOI: 10.1038/NGEO2963
34. Toosi E.R., Kravchenko A.N., Guber A.K., Rivers M.L. 2017. Pore characteristics regulate priming and fate of carbon from plant residue. *Soil Biology and Biochemistry*, 113: 219-230.
35. Smucker, A.J.M., Yang, Z., Guber, A.K., He, X.C., Lai, F.H. and Berhanu, S. 2016. A new revolutionary technology to feed billions by establishing sustainable agriculture on small and large landscapes including urban regions globally. *IJDR* 10: 9596-9602.
36. Iqbal S.\*, A.K Guber, H. Z. Khana. 2016. Estimating nitrogen losses after compost application in furrow irrigated soils of Pakistan using HYDRUS-2D software. *Agricultural Water Management*, 168: 85-95.
37. Kim K., G. Whelan, M. Molina, S.T. Purucker, Y. Pachepsky, A. Guber, M.J. Cyterski, D.H. Franklin, R.A. Blaustein. 2016. Rainfall-induced release of microbes from manure: model development, parameter estimation, and uncertainty evaluation on small plots, *Water and health.*, 14: 443-459. DOI: 10.2166/wh.2016.239.
38. Guber, A.K., D.M. Williams, A.C. Dechen Quinn, S.B. Tamrakar, W.F. Porter, J.B. Rose. 2016. Model of pathogen transmission between livestock and white-tailed deer in fragmented agricultural and forest landscapes. *Environmental Modelling & Software* Volume 80, June 2016, Pages 185–200. <http://dx.doi.org/10.1016/j.envsoft.2016.02.024>
39. Kravchenko, A. N., Negassa, W., Guber, A. K., & Rivers, M. 2015. Protection of soil carbon within macro-aggregates depends on intra-aggregate pore characteristics. *Plos One*, Article number: 16261. doi:doi:10.1038/srep16261
40. Negassa, W., A. K. Guber, A. N. Kravchenko, T.L. Marsh, B. Hildebrandt, and M. L. Rivers. 2015. Properties of soil pore space regulate pathways of plant residue decomposition and community structure of associated bacteria. *PLoS One*, 10: e0123999. doi: 10.1371/journal.pone.0123999.
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***Papers Presented at International, National and Regional Meetings:***

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