

Tartu kolledž, 2018. aasta teadus- ja arendustegevuse aruanne

1. Struktuuriüksuse struktuur 2018. a

Tartu kolledž / Tartu college

Lembit Nei, lembit.nei@ttu.ee, +372 620 4802

- Keskkonnatehnoloogia uurimisrühm
- Ehitatud keskkonna uurimisrühm
- Research group of environmental technologies
- Built Environment research group

2. Teadus- ja arendustegevuse ülevaade uurimisrühmade lõikes

Keskkonnatehnoloogia uurimisrühm

Uurimisrühma juht

M.Ivask, professor (kuni 31.08.2018)

A.Kuu, dotsent (alates 01.09.2018)

Uurimisrühma liikmed

L.Nei, professor

A.Kuu, dotsent (kuni 31.08.2018, alates 09.18 uurimisrühma juht)

J.Raamets, lektor, doktorant (osaleb ka Ehitatud keskkonna uurimisrühma teemades)

S.Kutti, lektor, (kuni 31.08.2018)

K.Kanger, projektijuht (alates 01.10.2018)

E.Haiba, lektor

T.Lepasaar, lektor

K.Kalda, lektor

T.Niine, lektor

Võtmesõnad: tööstusökoloogia; keskkonnatehnoloogia; keskkonnamikrobioloogia ja -keemia, mullabioloogia

Teaduserialad: 1.6; 4.1

Uurimisrühma tutvustus

- Tootmisprotsessiga seotud energia- ja materjalivoogude uurimine, olelusringi hindamine, ressursside efektiivne kasutamine.
- Kompetents jäätmete taaskasutustehnoloogiate arendamisel ja rakendamisel, (ravimijäägid reoveesettes ja nende lagundamise efektiivsus).
- Keskkonnaseisundi hindamise meetodikate väljatöötamine, kasutades mulla mikrobioloogilisi parameetreid ja elustikuparameetreid bioindikaatoritena.

Projektid

VEU19008. "CA17136". Siseõhu saasteaineid uuriv koostöövõrgustik (2018–2022). A.Ruus, TTÜ, Tartu kolledž.

VEU16054. Mullafauna - mulla orgaanilise aine dünaamika ja modelleerimise võti (KEYSOM) (2015–2019). M.Ivask, TTÜ, Tartu kolledž.

SS437. Drooniplatvormil põhinevate keskkonna ja ehitiste kaugseire tehnoloogiate väljatöötamine ja katsetamine Kirde-Eesti tööstusaladel. (2018) T.Lepasaar, TTÜ, Tartu kolledž.

Patendid: -

Järel doktorid: -

Tunnustused: -

Välisorganisatsioonide liikmed: Lembit Nei, SETAC – rahvusvaheline keskkonna-toksikoloogia ja -keemia selts

PhD kaitsmine

Jüri Järvis. *Tehnoloogia väljatöötamine tahkete orgaaniliste jäätmete kasutamiseks endiste kaevandusalade rekultiveerimisel*. Juhendajad: M. Ivask; L. Nei. Kaitsmise aeg: 2018

Konverentsid

Haiba, E.; Nei, L. (2018). *Degradation of pharmaceutical and personal care products using sewage sludge composting*. Linnaeus Eo-Tech. Kalmar, Rootsi.

Raamets, J.; Ruus, A.; Ivask, M. (2018). *Assessment of indoor air quality and hygrothermal conditions of boarders during autumn, winter and spring in two of Estonian straw-bale houses*. Cold Climate HVAC. The 9th International Cold Climate Conference Sustainable new and renovated buildings in cold climates Kiruna, Rootsi.

Haiba, E.; Nei, L.; Herodes, K.; Ivask, M.; Lillenberg, M. (2018). *On the degradation of metformin and carbamazepine residues in sewage sludge compost*. 9th International Conference Biosystems Engineering 2018 BOOK OF ABSTRACTS: 9–11 May 2018 Tartu – Estonia. Editors Olt J.; Kikas T.; Meneses L. Tartu: Eesti Maaülikool, 27.

Publikatsioonid

Haiba, E.; Nei, L.; Herodes, K.; Ivask, M.; Lillenberg, M. (2018). *On the degradation of metformin and carbamazepine residues in sewage sludge compost*. Agronomy Research, 16 (3), 696–707.10.15159/AR.18.123.

Ivask, M.; Kuu, A.; Meriste, M.; Kutti, S.; Palo, A.; Raamets, J.; Kilki, S. (2018). *Springtails of flooded meadows along Matsalu Bay and the Kasari River, Estonia*. Pedobiologia, 66, 1–10.10.1016/j.pedobi.2017.12.001.

Sammet, K.; Ivask, M.; Kurina, O. (2018). *A synopsis of Estonian myriapod fauna (Myriapoda: Chilopoda, Diplopoda, Symphyla and Pauropoda)*. ZooKeys, 793, 63–96.10.3897/zookeys.793.28050.

Osalemine võrgustikes

M.Ivask - ESSEM COST Action ES1406 - Soil fauna - Key to Soil Organic Matter Dynamics and Modelling (KEYSOM)

M.Ivask - Maailma looduskaitseorganisatsiooni IUCN juures asuva Euroopa Säästva Kasutamise Grupi (European Sustainable Use Group by IUNC) juhtkomitee liige

E.Haiba - Eesti vee-ettevõtete liidu liige

ERASMUS+ CBHE taotluste hindamise ekspert, Education, Audiovisual and Culture Executive Agency (EU)

K.Kanger – Eesti Mikrobioloogide Ühenduse liige

RESEARCH GROUP OF ENVIRONMENTAL TECHNOLOGIES

Head of the research group

M.Ivask, professor (until 31.08.2018)

A.Kuu, PhD (since 01.09.2018)

Members of the research group

L.Nei, professor

A.Kuu, PhD (until 31.08.2018)

J.Raamets, doctoral student

S.Kutti, doctoral student (until 31.08.2018)

K.Kanger, MSc, project manager (since 01.10.2018)

E.Haiba, PhD

T.Lepasaar, MSc

K.Kalda, MSc

T.Niine, MSc

Keywords: environmental microbiology and -chemistry, soil biology.

Introduction of research group

- The studies of energy and material flow, LCA, efficiency in using resources
- Competent in the development and implementation of waste recycling technologies. (drug residues in sewage sludge and their degradation efficiency)
- Development of methodologies for assessing the status of the environment, we use soil microbiological parameters and soil invertebrates' parameters as bioindicators

Projects:

VEU19008 "CA17136 - INDoor AIR POLLution NETwork (2018–2022)", A.Ruus, TUT, Tartu College.

VEU16054 "Soil fauna - Key to Soil Organic Matter Dynamics and Modelling (KEYSOM) (2015–2019)", M.Ivask, TUT, Tartu College.

SS437. Developing and testing drone platform based environmental and remote sensing technologies for industrial areas in North-Eastern Estonia. (2018). T.Lepasaar. TUT, Tartu College.

Patent: -

List of post-doctorates: -

Most important acknowledgments: -

Members of International organisations: Lembit Nei – Society of Environmental Toxicology and Chemistry (SETAC) member

Defense of PhD thesis:

J.Järvis. *Novel Technology for Utilization of Solid Organic Waste in Recultivation of Abandoned Mining Areas*, TUT, Tartu College. Supervisors: M.Ivask; L.Nei, Defence: 2018

Conferences:

Haiba, E (2018). *Degradation of pharmaceutical and personal care products using sewage sludge composting*. Linnaeus Eo-Tech. Kalmar, Sweden.

Raamets, J.; Ruus, A.; Ivask, M. (2018). *Assessment of indoor air quality and hygrothermal conditions of boarders during autumn, winter and spring in two of Estonian straw-bale houses*. Cold Climate HVAC. The 9th International Cold Climate Conference Sustainable new and renovated buildings in cold climates, Kiruna, Sweden.

Selected publications

Haiba, E.; Nei, L.; Herodes, K.; Ivask, M.; Lillenberg, M. (2018). *On the degradation of metformin and carbamazepine residues in sewage sludge compost*. Agronomy Research, 16 (3), 696–707.10.15159/AR.18.123.

Ivask, M.; Kuu, A.; Meriste, M.; Kutti, S.; Palo, A.; Raamets, J.; Kilki, S. (2018). *Springtails of flooded meadows along Matsalu Bay and the Kasari River, Estonia*. Pedobiologia, 66, 1–10.10.1016/j.pedobi.2017.12.001.

Sammet, K.; Ivask, M.; Kurina, O. (2018). *A synopsis of Estonian myriapod fauna (Myriapoda: Chilopoda, Diplopoda, Symphyla and Pauropoda)*. ZooKeys, 793, 63–96.10.3897/zookeys.793.28050.

Members of the networks:

M.Ivask - ESSEM COST Action ES1406 - Soil fauna - Key to Soil Organic Matter Dynamics and Modelling (KEYSOM)

M.Ivask -Global Soil Biodiversity Initiative - member

M.Ivask - European Sustainable Use Group by IUCN, Committee member

E.Haiba - Estonian Water Works Association (EVEL), member

Lembit Nei - Expert for the evaluation of ERASMUS+ CBHE applications, Education, Audiovisual and Culture Executive Agency (EU)

K.Kanger – Estonian Society for Microbiology, member

Ehitatud keskkonna uurimisrühm

Uurimisrühma juht:

Aime Ruus, dotsent;

Uurimisrühma liikmed

Epi Tohvri, PhD, dotsent,

Merik Meriste, PhD, dotsent,

Ernst Tungel, PhD, dotsent,

Nele Nutt, PhD, lektor,

Helle Hallik, PhD, lektor

Ago Rootsi, MSc, lektor,

Jiri Tintera, MSc, lektor, doktorant

Jane Raamets MSc, lektor, doktorant,

Lehar Leetsaar, MSc, lektor, doktorant,

Zenia Kotval, PhD, konsultant

Sirle Salmistu, PhD

Võtmesõnad

Jäätmaa (*brownfields*), linnaplaneerimine, puitarhitektuuri ajalugu, ehitusmaterjalid, sisekliima

Uurimisalused teemad ja uurimisrühma kompetentsid:

(1) ehitatud keskkond, linna- ja regionaalplaneering; (2) kogukondlik areng, linna- ja maa-asustuse majanduslikult ökonoomne taaskasutamine ja ümberkujundamine; (3) kultuuripärandi konserveerimine linnaplaneerimisel, ning ajaloolistel maastikel ning parkides. (4) pruunalade taaskasutus; (5) puitarhitektuuri ajalugu, (6) ajalooliste hoonete uurimine; (7) õppekeskkondade ja nende arhitektuursete lahenduste uurimine; (8) ehitusmaterjalid, sisekliima, ehitusfüüsikalised ja energiatõhususe aspektid; (9) küberfüüsikalised süsteemid hoonete ja linna- ning regionaalplaneerimise teenistuses. Teemad on aktuaalsed linnaplaneerimise valdkonnas ning aitavad lahendada probleeme küberfüüsikaliste süsteemide rakendamisega ehituses, tööstuses ja muudes eluvaldkondades.

Artiklid:

Tohvri, E. (2018). *Georges Frédéric Parrot and His Friendship with Two Great Men—The French Scientist Georges Cuvier and Emperor Alexander I of Russia*. *Acta Baltica Historiae et Philosophiae Scientiarum*, 6 (2), 5–30.

Tintera, J.; Kitval, Z.; Ruus, A.; Tohvri, E. (2018). *Inadequacies of heritage protection regulations in an era of shrinking communities: a case study of Valga, Estonia*. *European Planning Studies*, 26 (12), 2448–2469.

Tohvri, E. (2018). Valgustusajastu uue ülikooli idee – “Akadeemiline küla” – Thomas Jeffersoni poolt kavandatud Virginia ülikooli kontseptuaalne seos Tartu ülikooliga 19. sajandi alguses. *Kunstiteaduslikke Uurimusi / Studies on art and architecture*, 4, 64–91.

Teadustulemused

Sirle Salmistu kaitses Zenia Kotval'i juhendamisel (Michigan State University) doktoritöö *The Theory and Practice of Contemporary Place Related Concepts in Urban Planning* (Kaasaegsed kohapõhised linnaplaneerimise kontseptsioonid teoorias ja praktikas),

Jane Raamets ja Aime Ruus osalesid ettekannetega *Assessment of indoor air quality and hygrothermal conditions of boarders during autumn, winter and spring in two of Estonian straw-bale houses ja Determination of Clay-Sand Plaster Hygrothermal Performance: Influence of Different Types of Clays on Sorption and Water Vapour Permeability*

konverentsil Cold Climate HVAC 2018 - The 9th International Cold Climate Conference Sustainable new and renovated buildings in cold climates, 12.-15. märts 2018 Kirunas

Täiendav info

Tegevusvaldkond: Tehnika ja tehnoloogia: ehitusteadused
Jiri Tintera - perekond Kreisi arhitektuuripreemia laureaat;
Epi Tohvri - European Early American Studies Association

Zenia Kotval - Fellow of the American Institute of Certified Planners
Zenia Kotval - Board Member, Planning Accreditation Board 2015-18
Aime Ruus – MC member of COST Action CA17136 - INDoor AIR POLLution NETWORK

Built Environment research group

Group leader: Aime Ruus, associate professor, Tartu college

Members of research group

Epi Tohvri, PhD, associated professor
Merik Meriste, PhD, associated professor
Ernst Tungel, PhD, associated professor
Nele Nutt, PhD, lecturer,
Helle Hallik, PhD, lecturer,
Ago Rootsi, MSc, lecturer,
Jiri Tintera, MSc, lecturer, doctoral student
Jane Raamets MSc, lecturer, doctoral student
Lehar Leetsaar, MSc, lecturer, doctoral student
Zenia Kotval, PhD, consultant
Sirle Salmistu, PhD.

Key words

Keywords: brownfields, urban planning, history of wooden architecture, construction materials, indoor climate

Research areas and competences of the group

Research areas 4.1

(1) built environment, urban and regional planning; (2) community development, economic revitalization, reuse and restoration, urban and rural settlement assessment; (3) heritage conservation in urban planning and historical landscapes and parks; (4) revitalization of brownfield's; (5) history of wooden architecture; (6) examination of historical buildings; (7) exploring learning environments and its architectural design; (8) construction materials, indoor climate, aspects of building physics and energy efficiency; (9) cyber-physical systems for buildings and urban and regional planning.

Publications:

- Tohvri, E. (2018). *Georges Frédéric Parrot and His Friendship with Two Great Men— The French Scientist Georges Cuvier and Emperor Alexander I of Russia*. Acta Baltica Historiae et Philosophiae Scientiarum, 6 (2), 5–30.
- Tintera, J.; Kotval, Z.; Ruus, A.; Tohvri, E. (2018). *Inadequacies of heritage protection regulations in an era of shrinking communities: a case study of Valga, Estonia*. European Planning Studies, 26 (12), 2448–2469
- Tohvri, E. (2018). Valgustusajastu uue ülikooli idee – “Akadeemiline küla” – Thomas Jeffersoni poolt kavandatud Virginia ülikooli kontseptuaalne seos Tartu ülikooliga 19.

sajandi alguses. Kunstiteaduslikke Uurimusi / Studies on art and architecture, 4, 64–91.

Results

Sirle Salmistu defended her doctoral thesis *The Theory and Practice of Contemporary Place Related Concepts in Urban Planning* under supervision of Zenia Kotval in Michigan State University

Jane Raamets and Aime Ruus had *presentations Assessment of indoor air quality and hygrothermal conditions of boarders during autumn, winter and spring in two of Estonian straw-bale houses* and *Determination of Clay-Sand Plaster Hygrothermal Performance: Influence of Different Types of Clays on Sorption and Water Vapour Permeability* in Conference *Cold Climate HVAC 2018 - The 9th International Cold Climate Conference Sustainable new and renovated buildings in cold climates*, March 12-15 2018 in Kiruna

Additional information

Fields of research: Engineering and technology: Civil engineering

Jiri Tintera - the winner of Kreisi family Architectural Award;

Epi Tohvri - European Early American Studies Association

Zenia Kotval - Fellow of the American Institute of Certified Planners

Zenia Kotval - Board Member, Planning Accreditation Board 2015-18

Aime Ruus – MC member of COST Action CA17136 - INDoor AIR POLLution NETwork