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International Researcher IDs

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Publons / Web Of Science ResearcherID: A-7227-2016

ScopusID: 56625890200

Yoksis Researcher ID: 135831

Education Information

Doctorate, Universiteit Gent, Faculty of Bioscience Engineering, Department of Biochemical and Microbial Technology, Belgium 2013 - 2016

Postgraduate, Middle East Technical University, Faculty Of Engineering, Department Of Environmental Engineering, Turkey 2011 - 2013

Undergraduate, Middle East Technical University, Faculty Of Engineering, Department Of Environmental Engineering, Turkey 2006 - 2011

Foreign Languages

English, C2 Mastery

Research Areas

Environmental Microbiology, Environmental Biotechnology

Academic Titles / Tasks

Assistant Professor, Hacettepe University, Mühendislik Fakültesi, Çevre Mühendisliği Bölümü, 2019 - Continues

Assistant Professor, Abdullah Gul University, Mühendislik Fakültesi, İnşaat Mühendisliği, 2017 - 2019

Research Assistant, Universiteit Gent, Faculty of Bioscience Engineering, Department of Biochemical and Microbial Technology, 2013 - 2016

Research Assistant, Middle East Technical University, Faculty Of Engineering, Department Of Environmental Engineering, 2011 - 2012

Published journal articles indexed by SCI, SSCI, and AHCI

1. Production of calcium carbonate-precipitating biomass powder as self-healing additive in concrete

and performance evaluation in mortar

Zhu X., Sakarika M., Ganigué R., Van Tittelboom K., ERŞAN Y. Ç., Boon N., De Belie N.
Cement and Concrete Composites, vol.138, 2023 (SCI-Expanded)

- II. **Life cycle assessment of lightweight concrete containing recycled plastics and fly ash**
ERŞAN Y. Ç., GÜLÇİMEN S., İmis T. N., Saygin O., UZAL N.
EUROPEAN JOURNAL OF ENVIRONMENTAL AND CIVIL ENGINEERING, vol.26, no.7, pp.2722-2735, 2022 (SCI-Expanded)
- III. **Production and compatibility assessment of denitrifying biogranules tailored for self-healing concrete applications**
Sönmez M., Erşan Y. Ç.
CEMENT & CONCRETE COMPOSITES, vol.126, 2022 (SCI-Expanded)
- IV. **The effect of chemical- versus microbial-induced calcium carbonate mineralization on the enhancement of fine recycled concrete aggregate: A comparative study**
Sönmez M., Ilcan H., Dundar B., Yıldırım G., Erşan Y. Ç., Şahmaran M.
JOURNAL OF BUILDING ENGINEERING, vol.44, 2022 (SCI-Expanded)
- V. **Microbially induced desaturation and carbonate precipitation through denitrification: A review**
Lin W., Lin W., Cheng X., Chen G., ERŞAN Y. Ç.
Applied Sciences (Switzerland), vol.11, no.17, 2021 (SCI-Expanded)
- VI. **Compatibility and biomineralization oriented optimization of nutrient content in nitrate-reducing-biogranules-based microbial self-healing concrete**
Kardogan B., Sekercioglu K., ERŞAN Y. Ç.
Sustainability (Switzerland), vol.13, no.16, 2021 (SCI-Expanded)
- VII. **Surface Consolidation of Maastricht Limestone by Means of Bacillus Sphaericus under Varying Treatment Conditions**
ERŞAN Y. Ç., Wang J., Fraeye D., Boon N., De Belie N.
Journal of Materials in Civil Engineering, vol.32, no.11, 2020 (SCI-Expanded)
- VIII. **Nitrite producing bacteria inhibit reinforcement bar corrosion in cementitious materials**
Erşan Y. Ç., Van Tittelboom K., Boon N., De Belie N.
Scientific Reports, vol.8, no.1, 2018 (SCI-Expanded)
- IX. **Impact of air entraining admixtures on biogenic calcium carbonate precipitation and bacterial viability**
Bundur Z. B., Amiri A., Ersan Y. Ç., Boon N., De Belie N.
Cement and Concrete Research, vol.98, pp.44-49, 2017 (SCI-Expanded)
- X. **Enhanced crack closure performance of microbial mortar through nitrate reduction**
Erşan Y. Ç., Hernandez-Sanabria E., Boon N., De Belie N.
Cement and Concrete Composites, vol.70, pp.159-170, 2016 (SCI-Expanded)
- XI. **Nitrate reducing CaCO₃ precipitating bacteria survive in mortar and inhibit steel corrosion**
Erşan Y. Ç., Verbruggen H., De Graeve I., Verstraete W., De Belie N., Boon N.
Cement and Concrete Research, vol.83, pp.19-30, 2016 (SCI-Expanded)
- XII. **Application of microorganisms in concrete: a promising sustainable strategy to improve concrete durability**
Wang J., Ersan Y. Ç., Boon N., De Belie N.
Applied Microbiology and Biotechnology, vol.100, no.7, pp.2993-3007, 2016 (SCI-Expanded)
- XIII. **Bio-Based Self-Healing Concrete: From Research to Field Application**
Tziviloglou E., Van Tittelboom K., Palin D., Wang J., Sierra-Beltran M. G., Ersan Y. Ç., Mors R., Wiktor V., Jonkers H. M., Schlangen E., et al.
SELF-HEALING MATERIALS, vol.273, pp.345-385, 2016 (SCI-Expanded)
- XIV. **Microbially induced CaCO₃ precipitation through denitrification: An optimization study in minimal nutrient environment**
Erşan Y. Ç., de Belie N., Boon N.
Biochemical Engineering Journal, vol.101, pp.108-118, 2015 (SCI-Expanded)

- XV. **Screening of bacteria and concrete compatible protection materials**
Erşan Y. Ç., Da Silva F. B., Boon N., Verstraete W., De Belie N.
Construction and Building Materials, vol.88, pp.196-203, 2015 (SCI-Expanded)
- XVI. **Self-protected nitrate reducing culture for intrinsic repair of concrete cracks**
Erşan Y. Ç., Gruyaert E., Louis G., Lors C., De Belie N., Boon N.
Frontiers in Microbiology, vol.6, 2015 (SCI-Expanded)
- XVII. **The effect of seed sludge type on aerobic granulation via anoxic-Aerobic operation**
Erşan Y. Ç., Erguder T. H.
Environmental Technology (United Kingdom), vol.35, no.23, pp.2928-2939, 2014 (SCI-Expanded)
- XVIII. **The effects of aerobic/anoxic period sequence on aerobic granulation and COD/N treatment efficiency**
Erşan Y. Ç., Erguder T. H.
Bioresource Technology, vol.148, pp.149-156, 2013 (SCI-Expanded)

Articles Published in Other Journals

- I. **Self-Healing Performance of Biogranule Containing Microbial Self-Healing Concrete Under Intermittent Wet/Dry Cycles**
ERŞAN Y. Ç.
JOURNAL OF POLYTECHNIC-POLITEKNIK DERGISI, vol.24, no.1, pp.323-332, 2021 (ESCI)
- II. **Overlooked Strategies in Exploitation of Microorganisms in the Field of Building Materials**
ERŞAN Y. Ç.
ECOLOGICAL WISDOM INSPIRED RESTORATION ENGINEERING, pp.19-45, 2019 (Peer-Reviewed Journal)
- III. **Volume fraction, thickness, and permeability of the sealing layer in microbial self-healing concrete containing biogranules**
Erşan Y. Ç., Palin D., Yengec Tasdemir S. B., Taşdemir K., Jonkers H. M., Boon N., De Belie N.
Frontiers in Built Environment, vol.4, 2018 (Scopus)
- IV. **Resilient Denitrifiers Wink at Microbial Self Healing Concrete**
Erşan Y. Ç., De Belie N., Boon N.
International Journal of Environmental Engineering, vol.2, pp.37-41, 2015 (Peer-Reviewed Journal)

Books & Book Chapters

- I. **Overlooked Strategies in Exploitation of Microorganisms in the Field of Building Materials**
Erşan Y. Ç.
in: Ecological Wisdom Inspired Restoration Engineering, Varennyam Achal, Abhijit Mukherjee, Editor, Springer-Verlag, Singapore, pp.19-45, 2019

Refereed Congress / Symposium Publications in Proceedings

- I. **Improvement of fine recycled aggregates by microbially induced CaCO₃ precipitation**
Arıkan E., Bilici S. N., Erşan Y. Ç.
6th Eurasia Waste Management Symposium, İstanbul, Turkey, 24 - 26 October 2022, vol.1, pp.606-613
- II. **Pre-treatment procedure for effective bioleaching of metals from large waste printed circuit board (WPCB) pieces**
Konakçı R., Pekcan M., Erşan Y. Ç.
6th Eurasia Waste Management Symposium, İstanbul, Turkey, 24 - 26 October 2022, vol.1, pp.68-76
- III. **A novel non-axenic granulated culture based microbial self-healing concrete**

Özbay B., Erşan Y. Ç.

6th Eurasia Waste Management Symposium, 24 - 26 October 2022, vol.1, pp.614-622

- IV. **Biogranules Simultaneously Hydrolysing Urea and Reducing Nitrate and Their Biomineralization Performance**
Soluk M., Kardoğan B., Erşan Y. Ç.
6th Eurasia Waste Management Symposium, İstanbul, Turkey, 24 - 26 October 2022, vol.1, pp.665-672
- V. **Concrete compatible biogranules: a novel healing agent for bio-based self-healing concrete**
Sönmez M., Erşan Y. Ç.
International Conference on Cement-Based Materials Tailored for a Sustainable Future, İstanbul, Turkey, 27 - 29 May 2021, pp.302-310
- VI. **Self-protected bacteria for healing and corrosion inhibition in concrete**
Erşan Y. Ç., Boon N., De Belie N.
1st International conference on Microbial Biotechnology in Construction Materials and Geotechnical Engineering (MBCMG2020), Nanjing, China, 6 - 07 November 2020, pp.52-53
- VII. **Durability of self-healing concrete**
De Belie N., Van Bellegheem B., ERŞAN Y. Ç., Van Tittelboom K.
7th International Conference on Concrete Repair, Concrete Solutions 2019, Cluj-Napoca, Romania, 30 September - 02 October 2019, vol.289, no.1003
- VIII. **Production of concrete compatible biogranules for self-healing concrete applications**
Sonmez M., ERŞAN Y. Ç.
7th International Conference on Concrete Repair, Concrete Solutions 2019, Cluj-Napoca, Romania, 30 September - 02 October 2019, vol.289, no.1002
- IX. **Microbial self-healing as two-step mechanism for corrosion inhibition in cracked concrete**
De Belie N., Erşan Y. Ç., Van Tittelboom K.
73rd International Conference on Innovative Materials for Sustainable Civil Engineering, Nanjing, China, 26 - 30 August 2019, pp.94
- X. **Corrosion prevention in cracked concrete by denitrifying bacterial granules**
De Belie N., Erşan Y. Ç., Van Tittelboom K.
7th International Conference on Self-Healing Materials (ICSHM 2019), Yokohama, Japan, 3 - 06 June 2019, pp.109
- XI. **Optimizing nutrient content of microbial self-healing concrete**
Erşan Y. Ç., Akin Y.
6th International Symposium on Life-Cycle Civil Engineering, IALCCE 2018, Ghent, Belgium, 28 - 31 October 2018, pp.2241-2246
- XII. **Healing depth and functionality regain of non-axenic granulated culture based self-healing concrete**
Erşan Y. Ç., Palın D., Jonkers H., Boon N., De Belie N.
Final Conference of RILEM TC 253-MCI on Microorganisms and Cementitious Materials Interactions, Toulouse, France, 25 - 26 June 2018, vol.2, pp.511-520
- XIII. **Biotechnology offers more durable and sustainable cementitious composites**
ERŞAN Y. Ç.
Final Conference of RILEM TC 253-MCI on Microorganisms and Cementitious Materials Interactions, Toulouse, France, 25 - 26 June 2018, vol.2, pp.379-386
- XIV. **Granules with activated compact denitrifying core (ACDC) for self-healing concrete with corrosion protection functionality**
Erşan Y. Ç., Boon N., De Belie N.
Final Conference of RILEM TC 253-MCI on Microorganisms and Cementitious Materials Interactions, Toulouse, France, 25 - 26 June 2018, vol.2, pp.475-484
- XV. **Surface consolidation of natural stones by use of bio-agents and chemical consolidate**
Wang J., Fraeye D., Erşan Y. Ç., De Muynck W., Boon N., De B. N.
14th International Conference on Durability of Building Materials and Components, Ghent, Belgium, 29 - 31 May 2017
- XVI. **Non Axenic NO₃ Reducing Culture Supersedes Axenic Cultures in Development of Microbial Self**

Healing Concrete

Erşan Y. Ç., De Belie N., Boon N.

E-MRS Fall Meeting 2015, Warszawa, Poland, 15 - 18 September 2015

XVII. Mechanical characteristics of the calcite precipitated in cracks of self-healing concrete studied by the indentation technique

Gruyaert E., Louis G., Betrancourt D., ERŞAN Y. Ç., Lors C., Damidot D., De Belie N.

E-MRS 2015 Fall meeting, Warszawa, Poland, 15 - 18 September 2015

XVIII. Microbial self healing concrete denitrification as an enhanced and environment friendly approach

Erşan Y. Ç., Boon N., De Belie N.

5th International Conference on Self-Healing Materials, North-Carolina, United States Of America, 22 - 24 June 2015

XIX. A rapid and repeatable method for establishing the water permeability of cracked mortar specimens

Palin D., Erşan Y. Ç., Wiktor V., De Belie N., Jonkers H.

2015 fib Symposium: Concrete - Innovation and Design, Copenhagen, Denmark, 18 - 20 May 2015, pp.333-334

XX. Ureolysis and denitrification based microbial strategies for self-healing concrete

Erşan Y. Ç., Wang J., Boon N., De Belie N.

5th International Conference on Concrete Repair, Belfast, United Kingdom, 1 - 03 September 2014, pp.59-64

XXI. Aerobik Anoksik Periyot Sıralama Farkının Ardışık Kesikli Reaktörlerde Granül Üretimine ve Azot KOİ Arıtım Verimine Etkisi

Erşan Y. Ç., Ergüder T. H.

ÇEVKOS VII, İstanbul, Turkey, 22 - 23 November 2012

XXII. Effect of Seed Sludge Type on Aerobic Granulation and Treatment Efficiency of Granules

Erşan Y. Ç., Ergüder T. H.

International Conference on Environmental Science and Technology, Texas, United States Of America, 25 - 29 June 2012

Supported Projects

De Belie N., De Graeve I., Project Supported by Private Organizations in Other Countries, Impact of Self-Healing Engineered Materials on Steel Corrosion in Reinforced Concrete, 2014 - 2018

De Belie N., Schmidt A., FP7 Project, Training Network for Self Healing Materials from Concepts to Market, 2012 - 2016

Bayramoğlu T. H., TUBITAK Project, The Investigation of Aerobic Granulation and Its Use For Nitrogen Removal in Sequencing Batch Reactors, 2011 - 2012

Bayramoğlu T. H., Project Supported by Higher Education Institutions, Investigation of Biological Nitrogen Removal with Granules, 2010 - 2011

Metrics

Publication: 45

Citation (WoS): 641

Citation (Scopus): 805

H-Index (WoS): 11

H-Index (Scopus): 11

Congress and Symposium Activities

First International Conference on Microbial Biotechnology in Construction Materials and Geotechnical Engineering,

Invited Speaker, Nanjing, China, 2020

Final Conference of RILEM TC 253-MCI on Microorganisms and Cementitious Materials Interactions, Invited Speaker,
Toulouse, France, 2018