



Konstantinos Gkyrtis

Dr. Civil Engineer

Assistant Professor, Democritus University of Thrace (D.U.Th.)

Current position (06/2023 – present): Assistant Professor of Highway and Pavement Engineering, Department of Civil Engineering, D.U.Th.

Diploma in Civil Engineering from the National Technical University of Athens (N.T.U.A., 2013)

M.Sc. in the Analysis and Design of Earthquake Resistant Structures (N.T.U.A., 2016)

Ph.D. in Highway and Pavement Engineering (N.T.U.A., 2021)

Multi-year experience (2014 – present) as a research associate at numerous N.T.U.A. research programmes at the scientific area: Highway and Pavement Engineering. Main aspects: road and pavement design, planning, maintenance, reinforcement and management of road and airport pavements, use of conventional and innovative materials for transport infrastructure projects.

Publication record with 29 scientific contributions at the area of pavement engineering and road material science at peer-reviewed journals and conference proceedings.

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1. Overview

Personal Information

Full name: Konstantinos Gkyrtis
Father's name: Alexandros
Year / place of birth: 1989 / Athens
Nationality: Greek
Educational background: Dr. Civil Engineer, National Technical University of Athens (N.T.U.A.)
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Foreign languages: English (Excellent knowledge), French (Good knowledge)
Membership: Technical Chamber of Greece
Research profiles / links: [Google Scholar](#), [SCOPUS](#), [Research Gate](#), [LinkedIn](#)

Research Interests

- Road structures and pavements
- Conventional, recycled, and non-conventional materials for pavement construction and reconstruction
- Evaluation of structural and functional conditions of pavements
- Non-destructive testing and advanced monitoring techniques of pavements
- Smart pavement management systems
- Pavement behavior vs new autonomous vehicle technology

Research Activities

- 2014-today
 - *Active research member of the Department of Transportation Planning and Engineering of N.T.U.A at 14 research programmes in the area: Highway and Pavement Engineering.*

Teaching

- 2023-2024
 - *Teaching five (5) undergraduate courses in the area: Highway and Pavement Engineering at the School of Civil Engineering of D.U.Th.*
- 2017-2023
 - *Contribution to eight (8) undergraduate courses in the area: Highway and Pavement Engineering at the Schools of (i) Civil Engineering and (ii) Rural, Surveying and Geoinformatics Engineering of N.T.U.A.*

Scientific Publications

- 29 scientific contributions at the area: Highway and Pavement Engineering
 - *11 publications in peer-reviewed journals*
 - *10 publications in peer-reviewed conference proceedings*
 - *8 other publications (peer-reviewed abstracts in conferences)*
- 3 dissertations
 - *Doctoral Dissertation in the area: Highway and Pavement Engineering*
 - *Postgraduate Diploma Thesis in the area: Highway and Pavement Engineering*
 - *Diploma Thesis in the area: Highway and Pavement Engineering*

Other Scientific Activities

- Participation at conferences and international events (2017 – present)
 - *9 oral presentations and 8 poster presentations for scientific contributions at conferences*
 - *Member of the organizing committee of the 10th International Conference on the Bearing Capacity of Roads, Railways and Airfields (BCRRA), 28-30 June 2017, Athens, Greece*
- Reviewer
 - *International Journals: International Journal of Pavement Engineering, Journal of Environmental Management, Transportation Research Record, Remote Sensing, Infrastructures, Applied Sciences, Sensors, Recycling, Materials, Sustainability, Buildings, Polymers, Mathematics, Future Transportation*

- *International Conferences: Transportation Research Arena, Transportation Research Board (TRB), International Conference on the Bearing Capacity of Roads, Railways and Airfields*

➤ Distinctions

- *Scholarship recipient from the Research Committee of N.T.U.A. for Ph.D. studies*
- *Award recipient of a scientific presentation at the 8th International Transportation PhD Student Symposium (12-13 September 2019, Aachen, Germany), presentation topic: pavement engineering and asphalt material technology.*

2. Education

- 2017-2021 Ph.D. degree | National Technical University of Athens (N.T.U.A.)
- *Specialization: Highway and Pavement Engineering*
 - *Title: Investigation of asphalt pavements mechanical performance*
- 2014-2016 M.Sc. programme | National Technical University of Athens (N.T.U.A.)
- *Programme: Analysis and Design of Earthquake Resistant Structures*
 - *Diploma thesis: Numerical simulation of pavement response assuming nonlinear behavior for the unbound materials*
 - *Grade Point Average: 9.47/10*
- 2007-2013 Diploma in Civil Engineering | National Technical University of Athens (N.T.U.A.)
- *Integrated Master's Degree*
 - *Discipline: Geotechnical Engineering*
 - *Diploma thesis: Pavement evaluation with Spectral Analysis of Surface Waves (SASW) method*
 - *Grade Point Average: 8.10/10*

3. Research activities

Participation in research programmes at the National Technical University of Athens (N.T.U.A.) in the scientific area: Highway and Pavement Engineering. Main subjects: laboratory testing of materials and mixtures, execution of in-situ measurements and data collection in the field, analysis of pavement performance data, development and justification of road maintenance planning and proposals, preparation of technical reports and presentations.

List of programmes:

No.	Title	Periods
1	Monitoring and evaluation of pavements functional and structural condition at Moreas motorway	2018 – present
2	Actions for the improvement of the research infrastructure components at the School of Civil Engineering N.T.U.A.	2022
3	Development of proposals and recommendations for the optimization of pavement maintenance and redesign needs at Attiki Odos	2021 – 2022
4	Contribution to the development of a pavement management system at Attiki Odos	2021
5	Investigation of the use of modified bitumen at the asphalt layers of the motorway nearby Aktio	2021
6	Expansion of the runway at the Syros airport	2021
7	Scientific support of stakeholders in the decision-making for road management and pavement aspects	2020
8	Investigation of pavement profile and roughness at Egnatia Odos	2019 – 2020
9	Performance evaluation of low energy asphalt mixes and their impact on pavement sustainability	2019
10	Aspects of road operation and in-service pavement behavior at Attiki Odos	2018
11	Contribution to the management of pavement maintenance needs at Attiki Odos	2018
12	Analysis of pavement design features, redesign parameters, and reinforcement aspects of flexible pavements at concessionaire projects	2016 – 2018

No.	Title	Periods
13	Development of a monitoring framework for the periodical assessment of pavements structural and functional condition	2015 – 2017
14	Investigation of the maintenance needs at a pavement track with an emphasis on the top layer resurfacing	2014

4. Teaching

(A) Teaching of undergraduate courses at D.U.Th. (2023 – 2024)

List of courses:

No.	Courses (semester)	School/Department	Academic periods
1	Road Design and Highway Engineering (3 rd)	Civil Engineering D.U.Th.	2023 – 2024
2	Pavements I (6 th)	Civil Engineering D.U.Th.	2023 – 2024
3	Road Design and Highway Engineering II (7 th)	Civil Engineering D.U.Th.	2023 – 2024
4	Pavements II (8 th)	Civil Engineering D.U.Th.	2023 – 2024
5	Environmental Impact of Road Construction (8 th)	Civil Engineering D.U.Th.	2023 – 2024

(B) Teaching associate at undergraduate courses at N.T.U.A. (2017 – 2023)

List of courses:

No.	Courses (semester)	School/Department	Academic periods
1	Laboratory on Materials (1 st -2 nd)	Civil Engineering N.T.U.A.	2018 – 2023
2	Road Construction (6 th)	Civil Engineering N.T.U.A.	2017 – 2023
3	Road and Airfield Pavement Design (7 th)	Civil Engineering N.T.U.A.	2017 – 2023
4	Pavement Evaluation and Maintenance (8 th)	Civil Engineering N.T.U.A.	2017 – 2023
5	Advanced Topics on Pavements (9 th)	Civil Engineering N.T.U.A.	2017 – 2023
6	Integrated Project in Transportation Engineering (9 th)	Civil Engineering N.T.U.A.	2018 – 2023
7	Road Design IV - Elements of Construction (9 th)	Rural, Surveying and Geoinformatics Engineering N.T.U.A.	2017 – 2023
8	Designing-Study-Operation of Road Works (9 th)	Rural, Surveying and Geoinformatics Engineering N.T.U.A.	2021 – 2022

(C) Assistance and contribution to diploma theses prepared by six undergraduate students (2019 – 2022).

5. Scientific publications

Publications in peer-reviewed journals

- Gkyrtis K, Plati C, Loizos A (2023)** A step toward improving management practices for airfield pavement infrastructures: a mechanistic-based analysis approach. *Structure and Infrastructure Engineering*, <https://doi.org/10.1080/15732479.2023.2241055>.
- Gkyrtis K, Plati C, Loizos A (2023)** Structural Performance of Foamed Asphalt Base in a Full Depth Reclaimed and Sustainable Pavement. *Sustainability*, 15, 3622. <https://doi.org/10.3390/su15043622>.
- Plati C, Tsakoumaki M, **Gkyrtis K (2023)** Physical and Mechanical Properties of Reclaimed Asphalt Pavement (RAP) Incorporated into Unbound Pavement Layers. *Applied Sciences*, 13, 362. <https://doi.org/10.3390/app13010362>.
- Gkyrtis K, Armeni A, Loizos A (2022)** A mechanistic perspective for airfield pavements evaluation focusing on the asphalt layers' behavior, *International Journal of Pavement Engineering*, 23 (14), 5087-5100, <http://dx.doi.org/10.1080/10298436.2021.1995733>.
- Gkyrtis K, Plati C, Loizos A (2022)** Mechanistic Analysis of Asphalt Pavements in Support of Pavement Preservation Decision-Making. *Infrastructures*, 7, 61, <https://doi.org/10.3390/infrastructures7050061>.

6. **Gkyrtis K**, Armeni A, Plati C, Loizos A (2021) Structural performance assessment of airfield concrete pavements based on field and laboratory data, *Infrastructures*, 6, 173, <https://doi.org/10.3390/infrastructures6120173>.
7. **Gkyrtis K**, Loizos A, Plati C (2021) Integrating Pavement Sensing Data for Pavement Condition Evaluation, *Sensors*, 21, 3104, <https://doi.org/10.3390/s21093104>.
8. **Gkyrtis K**, Loizos A, Plati C (2021) A mechanistic framework for field response assessment of asphalt pavements, *International Journal of Pavement Research and Technology*, 14 (2), 174-185, <https://doi.org/10.1007/s42947-020-0097-x>.
9. Plati C, **Gkyrtis K**, Loizos A (2021) Integrating non-destructive testing data to produce asphalt pavement critical strains, *Nondestructive testing and evaluation*, 36 (5), 546-570, <https://doi.org/10.1080/10589759.2020.1834555>.
10. Plati C, Loizos A, **Gkyrtis K** (2020) Integration of non-destructive testing methods to assess asphalt pavement thickness, *NDT & E International*, 115, 102292, <https://doi.org/10.1016/j.ndteint.2020.102292>.
11. Plati C, Loizos A, **Gkyrtis K** (2020) Assessment of Modern Roadways Using Non-destructive Geophysical Surveying Techniques, *Surveys in geophysics*, 41, 395-430, <https://doi.org/10.1007/s10712-019-09518-y>.

Publications in peer-reviewed conference proceedings

12. **Gkyrtis K**, Loizos A (2023) Elastic versus viscoelastic responses for airfield pavements evaluation. Proceedings of the 3rd International Conference on Advances in Materials and Pavement Performance Prediction (AM3P 2022), May 22-24, 2023, Hong Kong.
13. **Gkyrtis K**, Loizos A, Plati C, Stergiou T (2022) Investigation of the relationship between asphalt pavement foundation and pavement profile (article in Greek). Proceedings: Geomechanics and Pavements, Organizer: Hellenic Society of Soil Mechanics and Geotechnical Engineering (HSSMGE), Date: 28/09/2022, Conference center University of West Attica, p. 95-106.
14. Loizos A, **Gkyrtis K**, Plati C, Georgouli K (2021) Field Performance Assessment versus Asphalt Pavement Considerations. Proceedings of 11th International Conference on Bearing Capacity of Roads, Railways and Airfields (BCRRA), Hoff, Mork & Saba (eds.), pages: 466-474.
15. Loizos A, **Gkyrtis K**, Plati C (2020) Modelling Asphalt Pavement Responses Based on Field and Laboratory Data, In: Chabot A., Hornych P., Harvey J., Loria-Salazar L. (eds) Accelerated Pavement Testing to Transport Infrastructure Innovation. Lecture Notes in Civil Engineering, vol 96. Springer, Cham, https://doi.org/10.1007/978-3-030-55236-7_45.
16. **Gkyrtis K**, Loizos A, Plati C (2020) Dealing with non-uniqueness of calculated asphalt pavements responses. Proceedings of the 2nd International Conference on Advances in Materials and Pavement Performance Prediction (AM3P 2020), May 27-29, 2020, Texas, San Antonio.
17. Georgiou P, Loizos A, Leventis A, **Gkyrtis K** (2019) Impact of laboratory compaction-based HMA stiffness on flexible pavement analysis. Proceedings of 7th International Conference on Bituminous Mixtures and Pavements (ICONFBMP), June 12-14, 2019, Thessaloniki, Greece, 153-159.
18. Loizos A, Cliatt B, Plati C, **Gkyrtis K** (2018) Assessment of variations in asphalt pavement mechanical responses. Proceedings of the International Conference on Advances in Materials and Pavement Performance Prediction (AM3P 2018), April 16-18, 2018, Doha, Qatar, 351-355.
19. Loizos A, Spiliopoulos K, Cliatt B, **Gkyrtis K** (2017) Structural pavement responses using nonlinear finite element analysis of unbound materials". Proceedings of 10th International Conference on Bearing Capacity of Roads, Railways and Airfields (BCRRA), June 28-30, 2017, Athens, Greece, 1343-1350.
20. Loizos A, Plati C, Cliatt B, **Gkyrtis K** (2017) Effectiveness of spectral analysis of surface waves (SASW) method for pavement evaluation. Proceedings of 10th International Conference on Bearing Capacity of Roads, Railways and Airfields (BCRRA), June 28-30, 2017, Athens, Greece, 631-636.
21. Cliatt B, Loizos A, **Gkyrtis K** (2017) Road pavement responses estimated through finite element modeling analysis. Proceedings of 10th International Conference on Bearing Capacity of Roads, Railways and Airfields (BCRRA), June 28-30, 2017, Athens, Greece, 1327-1334.

Other publications (peer-reviewed abstracts in conferences)

22. **Gkyrtis K**, Plati C, Loizos A (**2023**) Non-destructive testing methods and numerical development for enhancing airfield pavement management. Abstract accepted for presentation at the European Geosciences Union General Assembly 2023, 23-28 April 2023, Vienna, Austria.
23. Plati C, **Gkyrtis K**, Loizos A (**2023**) An Approach to Combine Structural and Functional Testing to Optimize Condition Assessment of Flexible Pavements. Abstract presented at the 102nd annual meeting of the Transportation Research Board (TRB), January 8-12, Washington, D.C.
24. **Gkyrtis K**, Loizos A, Plati C (**2022**) Sensing roadway surfaces for a non-destructive assessment of pavement damage potential. Abstract accepted for presentation at the European Geosciences Union General Assembly 2022, 23-27 May 2022, Vienna, Austria.
25. Plati C, **Gkyrtis K**, Loizos A (**2021**) Nondestructive data analysis for pavement profile evaluation. Abstract accepted for presentation at the European Geosciences Union General Assembly 2021, 19–30 April 2021 (virtually), Vienna, Austria.
26. Plati C, Loizos A, **Gkyrtis K** (**2020**) Data correlation of non-destructive testing methods to assess asphalt pavement thickness. Abstract accepted for presentation at the European Geosciences Union General Assembly 2020, 4-8 May 2020 (virtually), Vienna, Austria.
27. Plati C, Loizos A, **Gkyrtis K** (**2019**) Geophysical surveys for the inspection of roadway infrastructure: challenges and perspectives. Abstract accepted for presentation at the European Geosciences Union General Assembly 2019, 7–12 April 2019, Vienna, Austria.
28. Plati C, **Gkyrtis K**, Loizos A (**2019**) In-situ evaluation of a foamed asphalt stabilized base. Abstract presented at the 98th annual meeting of the Transportation Research Board (TRB), January 13-17, Washington, D.C.
29. Loizos A, Plati C, Papavasiliou V, **Gkyrtis K** (**2018**) Assessment of a cold in-place recycled pavement through non-destructive geophysical surveying. Abstract presented at European Geosciences Union General Assembly 2018, 8–13 April 2018, Vienna, Austria.

Dissertations

30. **Gkyrtis K** (**2021**) Investigation of asphalt pavements mechanical performance. Doctoral Dissertation, School of Civil Engineering, National Technical University of Athens (NTUA), Athens, p. 230.
31. **Gkyrtis K** (**2016**) Numerical simulation of pavement response assuming nonlinear behavior for the unbound materials. Postgraduate Diploma Thesis, School of Civil Engineering, National Technical University of Athens (NTUA), Athens, p. 111.
32. **Gkyrtis K** (**2013**) Pavement evaluation with Spectral Analysis of Surface Waves (SASW) method. Diploma Thesis, School of Civil Engineering, National Technical University of Athens (NTUA), Athens, p. 112.

6. Participation at conferences and international events

- 3rd International Conference on Advances in Materials and Pavement Performance Prediction (AM3P), May 22-24, 2023, Hong Kong (1 poster presentation)
- European Geosciences Union General Assembly 2023, April 23-28, 2023, Vienna, Austria (1 poster presentation)
- 102nd annual meeting of the Transportation Research Board (TRB), January 8-12, 2023, Washington, D.C. (1 poster presentation)
- One-day conference: Geomechanics and Pavements, Organizer: Hellenic Society of Soil Mechanics and Geotechnical Engineering (HSSMGE), September 28, 2022, Athens (1 oral presentation)
- European Geosciences Union General Assembly 2022, May 23-27, 2022, Vienna, Austria (1 oral presentation - virtual event)
- 6th International Conference on Accelerated Pavement Testing (APT), April 4-6, 2022, Nantes, France (1 oral presentation)
- European Geosciences Union General Assembly 2021, April 19–30, 2021, Vienna, Austria (1 oral presentation - virtual event)

- 2nd International Conference on Advances in Materials and Pavement Performance Prediction (AM3P), May 27-29, 2020, Texas, San Antonio (1 oral presentation - virtual event)
- European Geosciences Union General Assembly 2020, May 4-8, 2020, Vienna, Austria (1 oral presentation - virtual event)
- 8th International Transportation PhD Student Symposium, September 12-13, 2019, Aachen, Germany (1 oral presentation – it was awarded)
- European Geosciences Union General Assembly 2019, April 7–12, 2019, Vienna, Austria (1 poster presentation)
- 98th annual meeting of the Transportation Research Board (TRB), January 13-17, Washington, D.C. (1 poster presentation)
- 1st International Conference on Advances in Materials and Pavement Performance Prediction (AM3P), April 16-18, 2018, Doha, Qatar (1 oral presentation)
- European Geosciences Union General Assembly 2018, April 8–13, 2018, Vienna, Austria (1 poster presentation)
- 10th International Conference on Bearing Capacity of Roads, Railways and Airfields (BCRRA), June 28-30, 2017, Athens, Greece (1 oral presentation and 2 poster presentations)