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Vikki Edmondson^a— John Woodward^a — Michael Lim^a

Malal Kane^b—James Martin^a — Islam Shyha^a

^a *Department of Mechanical and Construction Engineering,
Northumbria University
Ellison Place
Newcastle Upon Tyne
NE1 8ST
United Kingdom*

vikki.edmondson@northumbria.ac.uk
john.woodward@northumbria.ac.uk
michael.lim@northumbria.ac.uk
James.e.martin@northumbria.ac.uk
islam.shyha@northumbria.ac.uk

^b *IFSTTAR-Nantes,
Institut Français des Sciences et Technologiques des Transports, de l'Aménagement et des
Réseaux
Allée des Ponts et Chaussées
Route de Bouaye - CS4
44344 Bouguenais Cedex, France
malal.kane@ifsttar.fr*

Measuring macrotexture effectively in the field using 3D non-contact techniques.

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Introduction

Texture measurements are now being used to inform analytical prediction methods for tyre-pavement contact friction without the influence of seasonal variation. Yet, there is a notable lack of research into the accuracy of the non-contact measurement techniques for the measurement of macrotexture.

Main Section

In the study undertaken macrotexture measurement were captured using terrestrial laser scanner (TLS), laser profile sensor, and photogrammetry non-contact techniques. Areal surface texture analysis was completed upon point cloud data derived from each technique to evaluate the suitability of the approaches to characterise and monitor pavement macrotexture.

Conclusion

The results found that peak density (Spd) and the arithmetic peak mean curvature (Spc), which together define the shape and distribution of pavement aggregates forming macrotexture, were sensitive to sample size, raising questions over the adequacy of a typical 150mm x 150mm or smaller pavement specimen size. The research suggests that the deployment of wider scale approaches are required in order to appropriately capture functional areal parameters (Spc and Spd) for road surfaces.