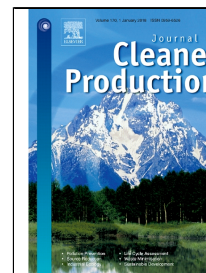


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Vehicle Energy Consumption and an Environmental Impact Calculation Model for the Transportation Infrastructure Systems

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Highlights:

- The paper introduces a semi-analytical roughness-speed impact (RSI) model
- The model is used to calculate excess energy consumption due to roughness of pavements
- The proposed model offers advantages for easy integration and implementation into pavement LCA applications
- Potential energy savings from pavement roughness can be up to 7% based on 35-year analysis

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