Concrete Strength: Rubber Crumbs & Steel Slag Mix - Python Analysis

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Abstract

Innovative methods for enhancing the binding properties of concrete have been explored, including the incorporation of steel slag and waste rubber tyre crumbs (CRAC) into the cement mantle of the concrete matrix. Through meticulous analysis using Python and regression methods, it was determined that an optimal mix comprising 12% waste rubber tyre crumbs and 9% steel slag yielded the most promising results in terms of technological feasibility and economic viability. Following a curing period of 28 days, the compressive strength of this optimized CRAC combination was measured at approximately 41 MPa. This achievement surpasses the typical compressive strength of 36 MPa achievable with conventional concrete mixes and even exceeds the recommended strength of 30 MPa for design mixes. The utilization of Python programming facilitated a comprehensive analysis of the compressive strength of concrete across various combinations, highlighting the efficacy of the proposed CRAC mix in enhancing concrete performance and durability.

Keywords

rubber tyre ; steel slag ; concrete ; regression model ; python

Main Subjects

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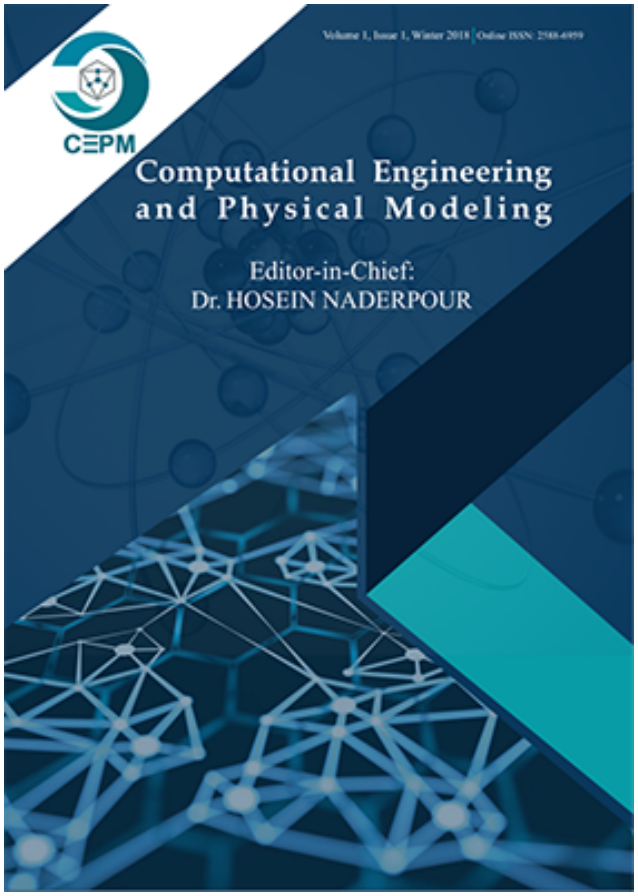

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