

## **Optimum structure aggregates medium with mortar- Application to concrete mixture**

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### **Abstract**

The attention of the concrete research was focused, in the last three decades, on improving the resistance of the concrete to external factors, which contributed to its sabotaged and weakened its investment age. Within this interest, studies headed towards the development of concrete specifications and the increase of its lifetime. Unanimously, overall research linked this result with the density and structure of aggregates.

In this context, basing on an analytical study we worked to develop a mathematical model to formulate the aggregates structure according to the defined physical and mechanical specifications. Also, we worked to include this model in a digital approach system which helps to formulate an aggregates' optimal structure for required specifications.

We have adopted similar aggregates used locally, which also were used in the process investigation of the proposed model. The results confirm the validity of the hypotheses which we started on, and the feasibility of the proposed mathematical model.

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**Keywords: granular structure, modeling, concrete, optimization.**

For the abstract in Arabic see pages (197-207).

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