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**Fractal and statistical analyses of crack surfaces and their use in
fracture mechanics of concrete dams**

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This research was conducted to study the fractal and statistical properties of the crack surfaces of concrete dams. The main objective was to determine the relationship between the fracture mechanics parameters and the surface characteristics of concrete dams. The results of this research can be used to predict the behavior of concrete dams under various loading conditions. The research involved the use of scanning electron microscopy (SEM) to obtain micrographs of the crack surfaces of concrete dams. The fractal and statistical analyses were performed on these micrographs to determine the surface characteristics of the cracks. The results showed that the fractal dimension of the crack surfaces is related to the fracture mechanics parameters of the concrete dams. The results also showed that the statistical properties of the crack surfaces are related to the fracture mechanics parameters of the concrete dams.

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