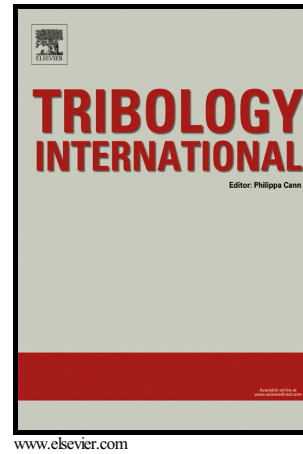


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## Monofractal and Multifractal Behavior of Worn Surface in Brass-Steel Tribosystem under Mixed Lubricated Condition

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**Abstract:** The dynamic evolution law of brass surface in brass-steel tribopair during wear process is studied by using monofractal and multifractal methods. Wear tests are performed on a ring-on-disc tribometer under mixed lubrication. The profile of brass surface is measured by the reposition-measurement apparatus. Both the maximum peak-to-valley height  $R_t$  and the width of multifractal spectrum  $\Delta\alpha$  decrease in running-in wear stage, maintain at a small value in steady wear stage, and increase rapidly in severe wear stage. While the evolution of fractal dimension is opposite to that of  $R_t$  and  $\Delta\alpha$ . The results are instructive to wear state identification.

**Keywords:** Worn surface; Wear process; Fractal dimension; Multifractal spectrum

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