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Structural evolution of a granular medium during simultaneous penetration

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1. The granular medium evolves from a static to a turbulent regime
2. The system exhibits the coexistence of three regions in different flow regimes
3. Cooperative dynamics of intruders is necessary for the formation of the flow regimes
4. Lacunarity and fractal dimension are useful tools to characterize structural changes
5. Our method is useful to monitor processes in industry to improve quality of products

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