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STRUCTURAL ENGINEERING / EARTHQUAKE ENGINEERING

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[\[PDF \(1207K\)\]](#) [\[References\]](#)**RIGID BODY SIMULATION USING VOLUME BASED COLLISION DETECTION**Katsuyuki SUZUKI¹⁾, Jun KUBOTA¹⁾ and Hideomi OHTSUBO²⁾

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For the rigid body simulation, robust and efficient rigid body dynamic simulation algorithm is developed. The rotation of rigid body is represented using quaternion and volume based collision detection algorithm is developed. The rigid body is subdivided into voxels, and collision detection is carried out with spheres that include voxels. The strategy for determining time step is described. Several examples are shown to demonstrate the efficiency, robustness and applicability to the non-convex objects of the method, and compared with polygon-based method. It is shown that by changing the level of sphere subdivision, it is possible to control the accuracy and computational efficiency.

Key Words: rigid body simulation, quaternion, voxel, collision detection, rock fall[\[PDF \(1207K\)\]](#) [\[References\]](#)Download Meta of Article [\[Help\]](#)[RIS](#)[BibTeX](#)

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