

Stress transmission in a binary disk system -Implication to earthquake fault -

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Granular systems were investigated from the viewpoint of granular system as a model of fault gouge.

Disk contact networks in binary disk systems under compression were measured by using photoelasticity. Two types of acrylic resin cylinders with diameters of 8 mm or 10 mm and a height of 10 mm were used as binary disks, which were packed at random into the 2 dimensional cell. Heterogeneous stress transmission in the system under compression were observed. The disk contact networks defined by connecting the centers of the contact disks were obtained by varying the ratio of 10 mm disk to 8 mm disk from 0 to 0.3. The distributions of coordination number and number of loop's path were obtained by analyzing the disk contact networks. Although the regular structure (triangular lattice in the network) appear at the single disk systems, the disorder in the networks are observed in binary disk system. A drastic change in the networks was observed when the binary disk system is used instead of the single disk system.

Implication of granular system to earthquake faulting will be discussed.