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Equilibrium of particle distribution on surfaces due to touch

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9 **Highlights**

- 10 1. An innovative touch machine is developed for studying particle contact transfer;
- 11 2. Four surface materials and fingers were tested with precise control of touch force and duration;
- 12 3. Particle transfer between the contacted surfaces reached equilibrium experimentally;
- 13 4. An equilibrium existed when the distribution was transitive;
- 14 5. An equilibrium can be reached even when some surface pairs never made direct contact.

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