



## **Aggregation of micron-sized magnetic dust particles in low magnetic field conditions**

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We performed dust aggregation experiments with magnetized particles to verify former numerical simulation results done by Nübold and Glassmeier (2000). The coagulation of small dust particles seems to be the first step of generation of planetesimals. In this process micron-sized dust particles in early solar system (or regions around other young stars) stick together and form dust aggregates, growing objects which are formed to planets by gravitational forces. This preplanetary dust aggregation process in protoplanetary accretion discs may be influenced and accelerated by magnetic forces between the dust grains. There is evidence for potentially magnetized materials like iron-nickel in the early solar system.

In our experiments we realized a strong alignment of all grown linear aggregates to the Earth's magnetic field. To prevent the disturbing field influencing the aggregation process it is necessary to decrease the magnetic fields. We implemented this in our experiment by using a large coil system consisting of three pairs of perpendicular arranged square coils covering the three spatial dimensions. The present work shows preliminary results from the experiments performed under low magnetic field conditions compared with those performed under normal magnetic field conditions.