Laboratory Experiments with Dust, Sand and Pebbles to form Planets

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Last years Nobel prize was awarded to Didier Queloz and Michel Mayor for detecting the first Extrasolar planet, a planet orbiting a star different from our sun. Meanwhile, thousands of these Exoplanets have been detected. Some are like our planets, some are more extreme, but obviously planets form regularly. So, can we pin down the basic mechanisms that build planets? I will present some of our recent laboratory experiments, ground based and in microgravity, on the early phases of planet formation. While a young star forming is still surrounded by a disk of dust and gas, the solids and gas interact with each other. The short story is, this leads to collisions, sticking, bouncing, charging, growth, fragmentation, drift, sublimation, erosion, concentration and likely the gravitational formation of km-size planetesimals as one of the milestones, eventually. The talk will be somewhat more detailed and highlight some challenges and chances.