

Particle Dynamics Analysis instrumentation for the Solar Orbiter Mission

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Wave and field interactions in the solar wind plasma and dust populations lead to both grouping and diffusive processes in these particle populations at the microscopic level. The measurement of these processes can aid in identifying existing mechanisms and help reveal new types of interactions that may be being "seeded" at the microscopic level. A review of the types of microscopic particle interactions expected in the inner heliosphere is presented together with how this may be directly measured using high time resolution particle dynamics instrumentation. Examples are also given for how this type of analysis has been applied to existing space missions and in particular how the measurements relate to wave properties of the medium.