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Life and Microgravity Sciences on board ISS and beyond (Part II) (7)

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SPACE FLOW - A CONCEPT FOR ADVANCED FLOW CYTOMETRY

Abstract

Flow cytometry (cytometry = cell measurement) describes a measurement method used in medicine and biology. It allows the analysis of cells that individually flow past a laser beam at high speed. Depending on the shape, structure and / or color of the cells different effects are generated, from which the properties of the cell can be derived. The flow cytometry is used in the clinic for routine diagnostics in hematology, infectology and immunology. Another major field of application is medical and cell biological basic research.

Flow Cytometry is part of the ModuLES-PBR to detect the health status of the algae used.

In addition a new technology was published using the capability of cells be deformed within a capillary stream of a defined viscosity. This group from the Biotechnology Center, Center for Molecular and Cellular Bioengineering, Technische Universität Dresden, Dresden, Germany (Real-time fluorescence and deformability cytometry — flow cytometry goes mechanics. Rosenthal et al.,) already published data combining classical flow cytometry and the mechanical deformation technology to one system.

Goal of the present study is the verification of such a system for space exploration purposes including a flight verification plan beginning with a parabolic flight.