Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

Signification of preparative continuous system for precision particle size fractionation and investigation of the principles for its realization JUN-ICHI KAWAHARA, National Institute of Advanced Industrial Science and Technology (AIST, JAPAN), YOICHIRO ITO, National Institutes of Health — To begin with, signification of preparative continuous system for precision particle size fractionation is to be discussed from fundamental points of view. Next, typical system presently envisioned for continuous particle size fractionation is to be analytically evaluated. Although it would be a right strategy to set separation direction perpendicular to the flow of carrier medium (namely, liquid), it seems to have some fundamental problems. First, gravity is too weak as a separation force for submicron or smaller particles. Second, high resolution would never be obtained due to its structural reasons. Third, during the continuation of the separation process, it would be difficult to keep the linear velocity of the carrier medium in the separation channel unchanged due to the deposition of larger particles, since the separation channel is quite narrow in the separation direction. Then, the principles to realize the continuous precision size fractionation for submicron and smaller particles by solving these problems are to be discussed.

Jun-ichi Kawahara
AIST

Date submitted: 28 Dec 2009 Electronic form version 1.4